OCT. 17–29, 1933.
STATIONS 1803 TO 1860

71° 70° 69° 68° 67° 66° 65° 64° 63°

44° 43° 42° 41°

GRAND MANAN

PENOBSCOT BAY

NOVA SCOTIA

Yarmouth

CAPE SABLE

Portland

Boston

CAPE COD

150 Pleuromamma

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

Metrodin
Oct
cc/hour

Pseudocalanus

October

cc/haul

No of Euchaeta
Oct

Centrapages

cc/hand

Oct.

Calanus
cc/haul
Oct

DEC. 2-11, 1933.
STATIONS 1861 TO 1905

71° 70° 69° 68° 67° 66°

44° 43° 42° 41° 40°

GRAND MANAN

PENOBSCOT BAY

NOVA SCOTIA

Yarmouth

CAPE SABLE

Portland

Boston

CAPE COD

1cc Pleuromamma

180 Pleuromamma

2 Halicthalestris croni

30 Pleuromamma

69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 00 01 02 03 04 05 61 62 63 64 65 66 67 68

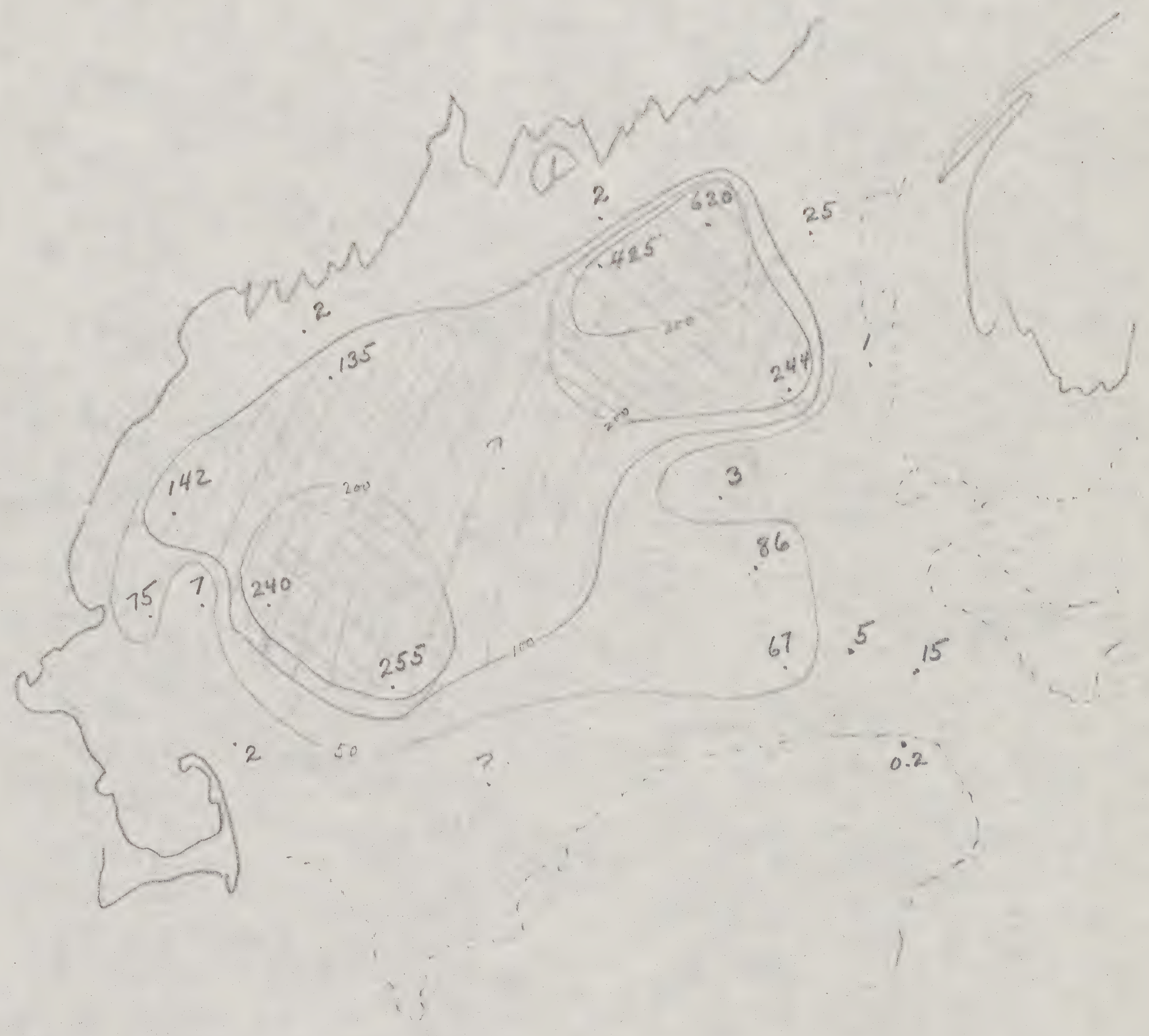
Pseudocalanus

Dec 1933

No of Specimens

Metridia
cc/haul
December

Centropages
cc/ hamd
December



Calamus fin.

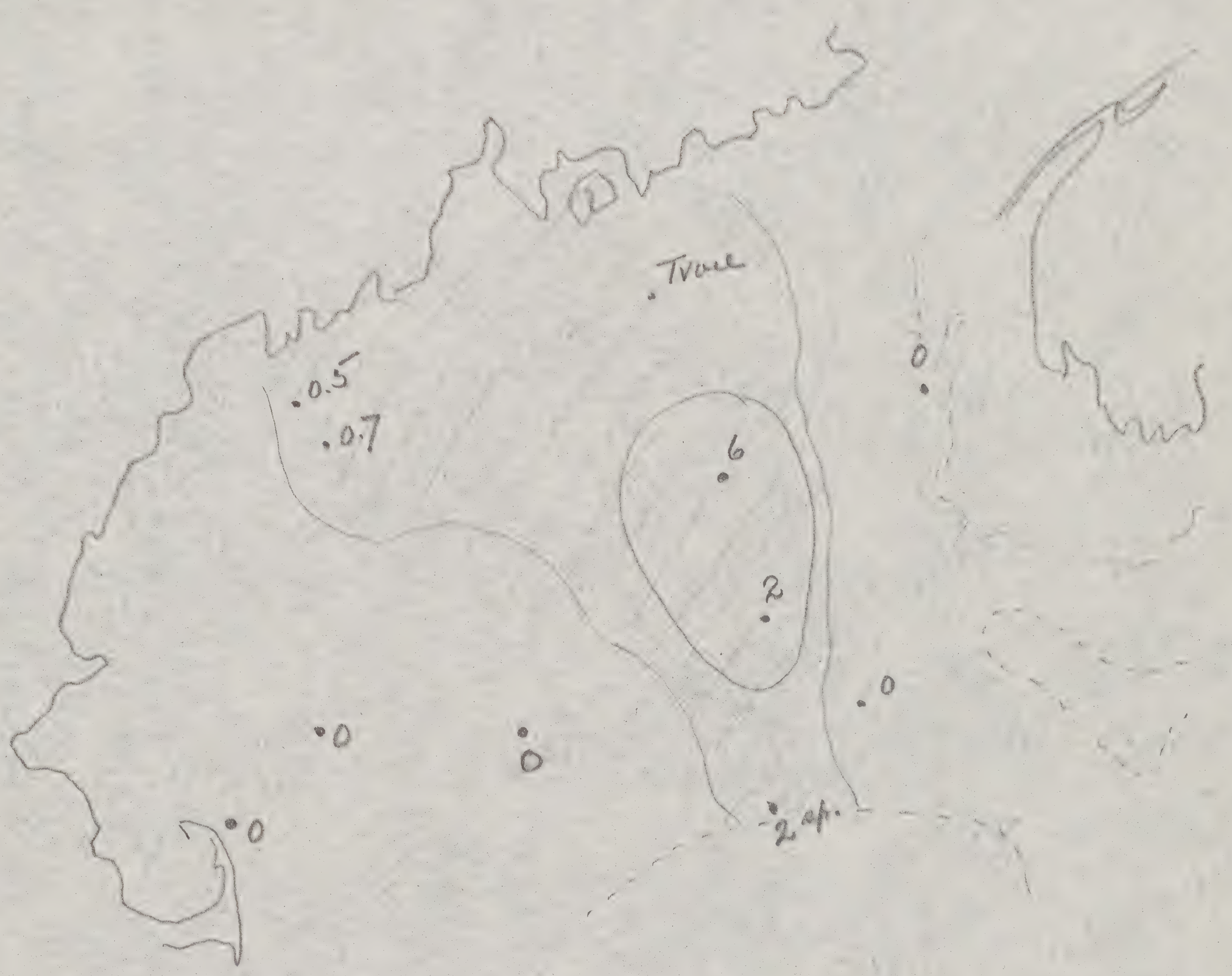
cc/hand

Dec.

Euchaeta

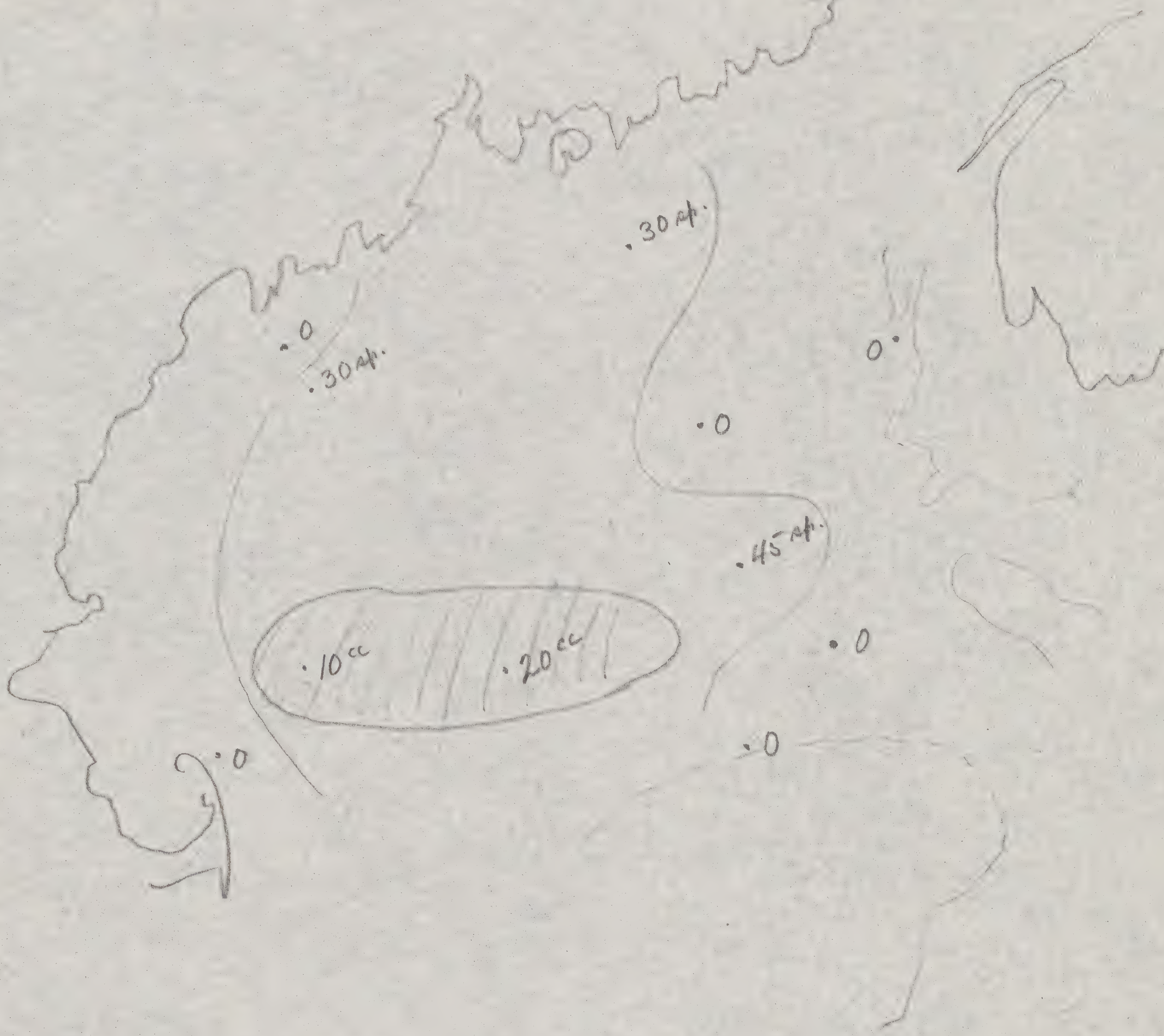
December

JAN. 9-13, 1934.
STATIONS 1907 TO 1934.



Pseudocalanus

January

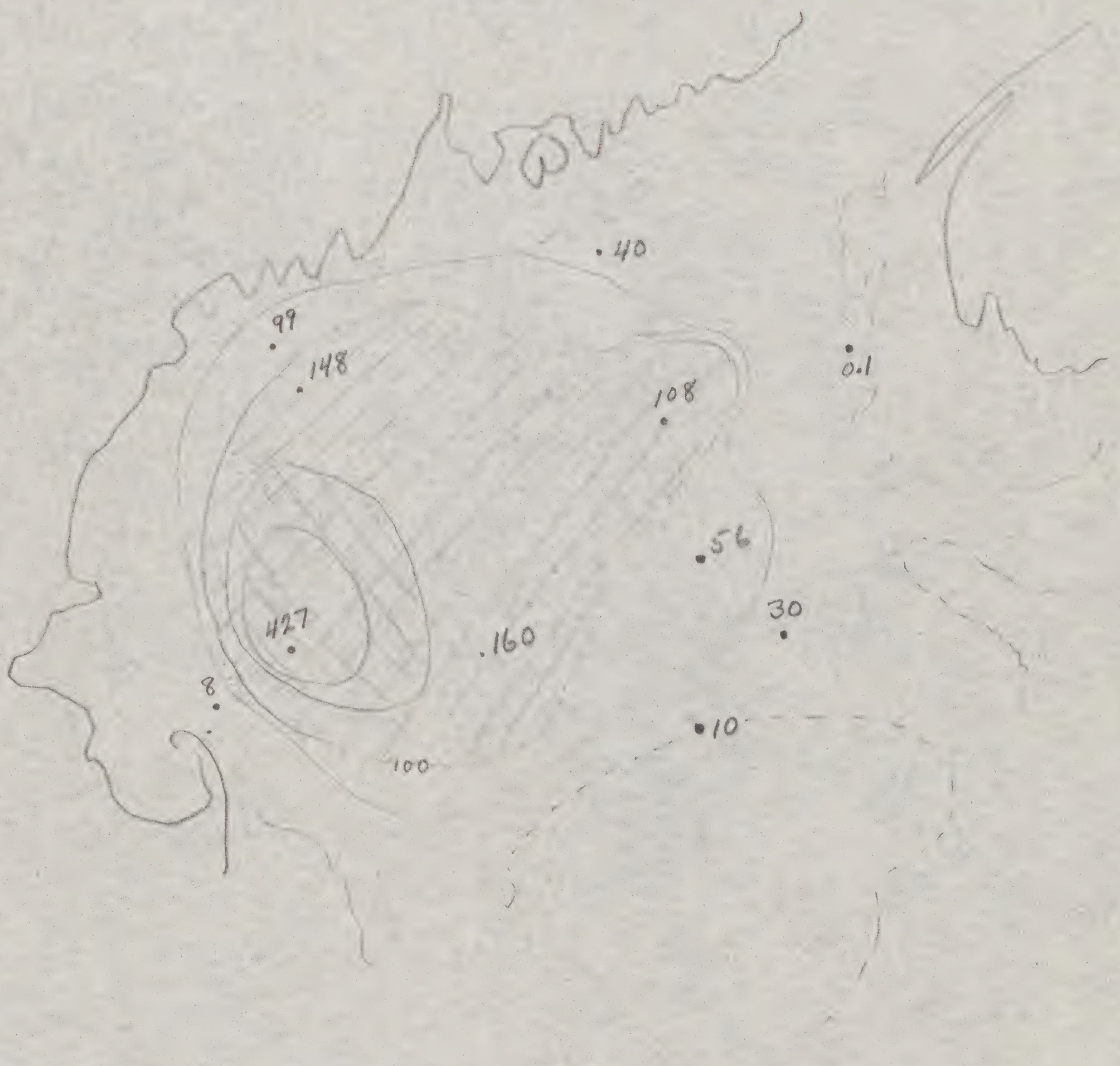


Euchaeta

January

cc/haul

Metridia
cc/haul
January



Calamus fir
Jan 1934
cc/haul

Mar.

~~APR~~. 21-28, 1934.

STATIONS 2019 TO 2070

1927 North of Georges Bank 50 cc Total Sample 10 cc

Calanus finmarchicus 6 cc
Metridia longa 4 cc

1928 Close to north margin of Georges Bank 10 cc Total Sample

Practically all Calanus with 2 or 3 specimens each of Metridia and Pseudocalanus —

1930 North of Georges Bank 75 cc Total 10 cc Taken

Calanus finmarchicus 7.50 cc
Metridia longa 2.25
Pseudocalanus 0.25 cc
Euchaeta norvegica 6 specimens —

2 specimens of Pleuromamma gracilis

1931 North of Georges Bank 200 cc. Total 10 cc Taken

Calanus finmarchicus 8 cc
Metridia longa 1 cc
Euchaeta norvegica 1 cc

Jan.

Mar 2022 Opposite Boston 150 cc Total 10 cc Taken

Calanus finmarchicus 9.50 cc
Metridia longa 0.25 cc
Euchaeta norvegica 0.25 cc
Pseudocalanus trace

2020 ?

2023 Opposite Cape Ann 175 cc Total 10 cc Taken

Calanus finmarchicus 8.50 cc
Metridia longa 1.00 cc
Euchaeta 0.25 cc
Pseudocalanus 0.25 cc
Calanus hyperboreus 2 specimens —

2030 South of Harpswell — 20 cc Total

Calanus and Metridia in proportion of 9 to 1
No Euchaeta or Pseudocalanus

2031 S.E. of 2030 — 15 cc Total —

Calanus and Metridia in proportion of 9 to 1
No Euchaeta or Pseudocalanus

2032 S.E. of 2031 75 cc Total. 10 cc Taken

Calanus finmarchicus 8.75 cc
Metridia longa 1.25 cc
Halitholathis oni 5 specimens
Pseudocalanus 11 "

2020 Opposite Truro 125 cc Total. 10 cc taken
Calanus finmarchicus 9.50 cc.
Metridia + Pseudocalanus 0.25 cc each — 1. Euchaeta

JAN. 9-13, 1934.
STATIONS 1907 TO 1934.
71°
70°
69°
68°
67°
66°
44°
43°
42°
41°
40°
GRAND MANAN
PENOBSCOT BAY
NOVA SCOTIA
Yarmouth
CAPE SABLE
Portland
Boston
CAPE COD
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34

1899 Between Georges & Browns Banks 75 cc Total - 10 cc Taken

Metridia longa 7.75 cc
Calanus finmarchicus 2.00 cc
Euchaeta norvegica 0.25
Pleuromamma gracilis 4 specimens

1900 Eastern end of Georges Bank - 1½ cc Total Dec 9th

Calanus, Metridia, Pseudocalanus about evenly divided
no other species

Dec
Jan 1907. Close to Shore at Truro 10 cc Total

Calanus finmarchicus 8 cc -
Metridia longa 2 cc
No other species -

1909 Opposite Boston - 450 cc Total 10 cc Taken

Calanus finmarchicus 8.50 cc
Metridia longa 1.25 cc all adults
Euchaeta norvegica 0.25 cc

1912. South of Harpswell - 150 cc. Total 10 cc Taken

Calanus finmarchicus 9.90 cc
Metridia longa 0.05 cc
Pseudocalanus 0.05 cc
Euchaeta 2 specimens

1913. South of Harpswell 100 cc Total 10 cc Taken

Calanus finmarchicus 9.90 cc
Metridia longa 0.05 cc
Pseudocalanus 0.05 cc
No Euchaeta -

1914. South of Mt Desert - 120 cc Total Sample

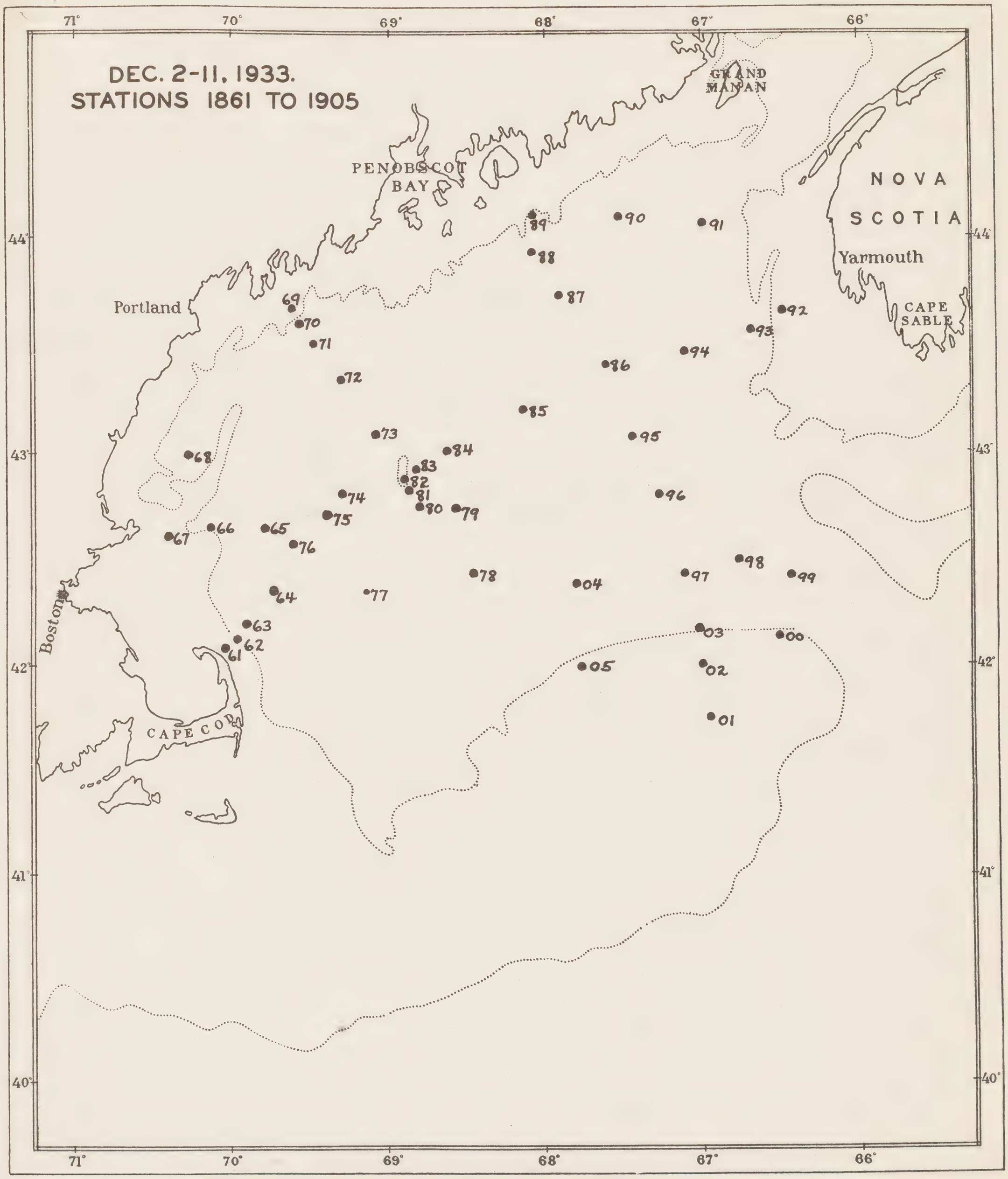
Calanus, Metridia and Pseudocalanus in the proportions - 9.90 : 0.05 : 0.05 -
Calanus hyperboreus 2 specimens

1916 South of Mt Desert 50 cc Total 10 cc Taken

Calanus finmarchicus 8 cc
Metridia longa 2 cc
Pseudocalanus trace
Euchaeta norvegica 6 specimens
Pleuromamma gracilis 3 "

1918 West of Yarmouth - 1/4 cc Total

Calanus & Metridia half & half -


DEC. 2-11, 1933.
STATIONS 1861 TO 1905
71°
70°
69°
68°
67°
66°
44°
43°
42°
41°
40°
GRAND MANAN
PENOBSCOT BAY
NOVA SCOTIA
Yarmouth
CAPE SABLE
Portland
Boston
CAPE COD
89
90
91
88
87
92
69
70
93
71
94
86
72
85
73
95
84
68
83
82
81
74
96
80
79
75
67
66
65
76
98
78
97
99
04
64
77
63
03
00
62
61
05
02
01

1862 - Off Truro close to shore 3 cc Total -
2 Calanus to 1 Centropages typicus
with a very few Metridia -

1865 Off Cape Ann - 300 cc Total 10 cc Taken -
Calanus finmarchicus 8 cc
Metridia longa 1 cc
Euchaeta norvegica 1 cc
Pseudocalanus minutus trace

1866 Off Cape Ann nearer shore 1865 - 15 cc Total Sample only
Calanus - Metridia, & Pseudocalanus - 5 : 2.50 : 2.50

1867. Still nearer to Cape Ann. 150 cc Total 10 cc Taken

Calanus finmarchicus 5 cc
Metridia longa 4 cc
Pseudocalanus minutus 1 cc
Euchaeta norvegica 2 specimens -

1868 Off Portsmouth 150 cc Total - 10 cc taken
of
Calanus finmarchicus 9.50 cc
Metridia longa 0.40 cc
Pseudocalanus minutus 0.10 cc
Euchaeta norvegica 7 specimens

1869 South of Harpswell Neck - 6 cc Total -
Calanus, Metridia, Centropages 2 cc. each
1 or 2 Pseudocalanus and 1 Euchaeta -

1871 S.E. of 1869 - 150 cc Total - 10 cc Taken
Calanus finmarchicus 9 cc
Metridia longa 0.50 cc
Pseudocalanus minutus 0.25 cc
Euchaeta norvegica 0.25 cc

1877 Opposite Boston - 300 cc Total 10 cc taken
Calanus finmarchicus 8.50 cc
Metridia longa 1.00 cc
Euchaeta norvegica 0.50 cc
Pseudocalanus trace

1888. South of Mt. Desert - 500 cc Total 10 cc taken
Calanus finmarchicus 9.50 cc
Metridia longa 0.25 cc
Euchaeta norvegica 0.25 cc
Pseudocalanus 2 specimens

1889. North of 1888 - 2 cc Total -

Calanus, Metridia and Centropages in the proportions of 7 : 0.5 : 0.5.

1890 Outer mouth of Bay of Fundy - 650 cc Total - 10 cc taken

Calanus finmarchicus 9.50 cc
Metridia longa 0.50 cc
Pseudocalanus 2 specimens
Euchaeta norvegica 4 specimens

1891 Mouth Bay of Fundy 50 cc Total 10 cc taken

Calanus finmarchicus 5 cc
Metridia longa 5 cc mostly copepodid stages
Euchaeta norvegica trace
Pseudocalanus trace

1893 Inshore off Yarmouth N.S. 2 cc Total

Calanus Metridia & Pseudocalanus - 4.50 : 4.50 : 1
Nearly all the Metridia copepodid stages -

1894 S.W. of Yarmouth - 250 cc Total - 10 cc taken -

Calanus finmarchicus 9.75 cc.
Metridia longa 0.25 cc.
Pseudocalanus and Euchaeta trace -

1895. S.W. of Cape Sable - 10 cc Total

Metridia longa 7 cc.
Calanus finmarchicus 2.90 cc
Pleuromamma gracilis 0.10 cc
Pseudocalanus & Centropages 2 or 3 specimens

1896 North of Georges Bank 150 cc Total 10 cc Taken

Calanus finmarchicus 5.75
Metridia longa 4.00
Pleuromamma gracilis 12 specimens
Euchaeta norvegica 0.25

1897 North of Georges Bank 100 cc Total 10 cc Taken

Calanus finmarchicus 6.75
Metridia longa 3.00 all adults -
Euchaeta norvegica 0.25

1898 Between Georges & Browns Banks 10 cc Total -

Calanus finmarchicus 4.50 cc
Metridia longa 4.50 cc
Euchaeta norvegica 1.00
Halitholestris erkii 2 specimens - Arctic form -

OCT. 17-29, 1933.
STATIONS 1803 TO 1860

71° 70° 69° 68° 67° 66° 65° 64° 63°

44° 43° 42° 41°

GRAND MANAN

PENOBSCOT BAY

NOVA SCOTIA

Yarmouth

CAPE SABLE

Portland

Boston

CAPE COD

01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

1806. Opposite Cape Ann - Oct, 14, 1933 100cc Total - 10cc taken

Calanus finmarchicus 8.75 cc
Metridia longa 1.00 cc
Euchaeta norvegica 0.25 24 specimens - very young -
No Centropages

1808 - North of Georges Bank Oct. 19, 1933 1808 - 150cc Total 10cc taken.

Calanus finmarchicus 8 cc -
Metridia longa 2 cc mostly copepodid stages
Centropages trace -
Euchaeta norvegica 8 specimens were developed -
Pleuromamma gracilis 10 " 1 adult, 9 very young -

1829 Between Browns Bank & Cape Sable - 200 cc Total, 10 cc taken

Calanus finmarchicus 8.75 cc
Pseudocalanus minutus 1.25 cc
Metridia longa trace -

1847 North of East end of Georges Bank - 0.50 cc Total

Divided between Calanus & Metridia, 2 to 1 -
Nothing else -

1853. 43° 20' N. 67° 50' W. 200 cc Total 10 cc Taken

Calanus finmarchicus 9 cc -
Metridia longa 1 cc
Pseudocalanus minutus trace
Euchaeta norvegica 20 specimens -

2217 Close to Cape Cod at Truro - 2 cc Total June 25, 1934

Calanus Metridia and Pseudocalanus
in the proportion of 5 : 2.50 : 2.50

2220 East of 2217 - 300 cc Total 10 cc Taken June 26, 1934

Calanus finmarchicus 10 cc -
Euchaeta norvegica 2 specimens
Metridia longa 6 " "

Caligus mobrak –
M. Edwards. 1849? pl. 77 fig. 3.

SEPT. 2 - 14, 1933.
STATIONS 1741 TO 1802

71° 70° 69° 68° 67° 66°

44° 43° 42° 41° 40°

GRAND MANAN

BAY OF FUNDY

PENOBSCOT BAY

NOVA SCOTIA

Yarmouth

CAPE SABLE

Cape Sable Shoals

Portland

Portsmouth

C. Ann

Boston

Plymouth

CAPE COD

C. Porpoise

Brown's Bank

150 f.

80 f.

140 f.

57 f.

60 f.

32 f.

Georges Bank

1741 1742 1743 1744 1745 1746 1747 1748 1749 1750 1751 1752 1753 1754 1755 1756 1758 1759 1760 1761 1762 1763 1764 1765 1766 1767 1768 1769 1770 1771 1772 1773 1774 1775 1776 1777 1778 1779 1780 1781 1782 1783 1784 1785 1786 1787 1788 1789 1790 1791 1792 1793 1794 1795 1796 1797 1798 1799 1800 1801 1802

	Centropages typicus + Rham	Metridia longa	Calanus finmarchicus	
1743	95	1	4	
1745	10	20	70	
1747	50	10	40	Euchaeta norvegica many
1748	10	20	70	Euchaeta norvegica few
1750	99	0.8	0.2	Small fish eggs, megalops

1743 Southern end of Georges Bank. 150 cc total tow, 10 cc taken

Centropages typicus (50) and hamatus (50) 8cc
Calanus finmarchicus 1.75cc —
Metridia longa 0.25cc.

1745 Opposite Orleans — 450 cc total. 10 cc taken —

Calanus finmarchicus 6 cc.
Metridia longa 2.25 cc
Centropages typicus + hamatus 1.75 cc Euchaeta norvegica traces

1747. Opposite Cape Ann. 250 cc total 10 cc taken

Centropages + + L. 5.00 cc
Calanus finmarchicus 4.50 cc.
Metridia longa 0.50 cc. Euchaeta traces

1748 Opposite Boston 300 cc total - 10 cc taken

Calanus finmarchicus 8 cc
Centropages + + L. 1.50 cc
Metridia longa 0.50 cc. Euchaeta - few -

1750 Close to Truro 50 cc total 10 cc taken

Centropages + + L. 9.50 cc.
Calanus finmarch. 0.40 cc
Metridia longa 0.10 cc

1952 Opposite Provincetown — 125 cc total 10 cc taken

Centropages + + L. 1.50 cc.
Metridia longa 1.50 cc.
Calanus finmarch. 7.50 cc.
Pseudocalanus minutus — 10 specimens —

1753 In Boston Bay 25 cc — 5 cc taken

Calanus finmarchicus 3 cc
Metridia longa 0.50 cc
Centropages + + L. 1.50 cc
Pseudocalanus minutus —— 2 specimens

1755 Opposite Cape Ann. 250 cc Total 10 cc. taken

Calanus finmarchicus	7.50	
Metridia longa	2.00	all parasitized
Centropages + + h.	0.50	typicus largely predominant
Pareuchaeta norvegica		12 specimens
Pseudocalanus minutus		2 " "

1756 N.E. from Cape Ann 250 cc Total — 10 cc. taken —

Calanus finmarchicus	9 cc	
Metridia longa	0.40	
Centropages t. + h.	0.60	
Pseudocalanus minutus		50 specimens

1758 Opposite Portland — 100 cc Total 10 cc taken —

Calanus finmarchicus	8 cc	
Metridia longa	1 cc	mostly copepodid stages
Centropages + + h.	0.50 cc	
Pseudocalanus —	0.50 cc —	

1760 S.E. of 1758 — 300 cc Total 10 cc. taken

Calanus finmarchicus	8 cc	
Metridia longa	1.75 cc	Adults —
Centropages + Pseudocalanus	0.25	Mostly Pseudocalanus
Euchaeta norvegica		8 specimens

1761 Opposite Cape Porpoise 150 cc. 10 cc Taken

Calanus finmarchicus	9 cc	
Metridia longa	1 cc	Adults + many copepodids
Centropages + Pseudocalanus		5 specimens each —
Euchaeta norvegica		3 " "

1764 Opposite Portsmouth 250 cc Total 10 cc Taken

Calanus finmarchicus	9 cc	
Metridia longa	1	
nothing else		

1765 South of Mt. Desert Island — 850 cc Total. 10 cc taken

Calanus finmarchicus	10 cc.	(largest Calanus finmarchicus ever grown. Net lowered to bottom)
Metridia longa	3 specimens	
Centropages	none	
Euchaeta	3 specimens	

1767 Mouth of Bay of Fundy 250 cc Total — 10 cc. Taken

Calanus finmarchicus	9.50 cc.	many copepodids
Metridia longa	0.50 cc —	full grown
Pseudocalanus minutus	none	

1768 Opposite Yarmouth N.S. 5cc. Total
A few Calanus finmarchicus, mostly crabs -

1769 - Opposite Yarmouth N.S.
Tows made up of Tunicates - no copepods - Taken

1770 Opposite Yarmouth N.S. deep water 200 cc Total, 10cc
Calanus finmarchicus 9.50 cc - mostly copepodids
Metridia Longa 0.50
Centropages and Pseudocalanus lucking -

1770 (2) Same

1771 Deep water S.W. of Yarmouth
Mostly tunicates - no copepods -

1771 (2). Same but milk very few Copepods -

1771 (28). Same milk 15cc total of Copepods
Calanus 90% Metridia 10% - no others -

1772 - Deep out S.W. of Yarmouth, N.S. 250cc Total 10cc taken
240 m. to surface Sep. 8 - 1933

Calanus finmarchicus	9.25 cc.
Metridia longa	0.70 cc.
Paracalanus parvus	0.05 cc.
Euchaeta norvegica	12 specimens
Sapphirina	

1774. South of Cape Sable - 10 cc Total small sample taken
made up entirely of 1 part Calanus to 3 parts (by bulk) Centropages
a single specimen of Metridia Longa
Most of the Calanus Copepodid stages few adults
all the Centropages fully grown

1775. South of 1774 - Cape Sable 4cc Total - Small sample taken
Made up of 7 1 part Centropages and 7 parts Calanus
5 specimens of Metridia -
Calanus larger than in 1774 Centropages all adults -

1777 Between Cape Sable and Brown's Shoals - 200 cc. Total 1 cc taken
Calanus finmarchicus 10 cc well grown
Metridia + Centropages + Paracalanus for 2 each -

Vertical 90 m.

1779 On Brown's Bank - 3 cc total - Sample taken and distributed in v proportions in the 3 bottles - Nearly all the Calanus were copepodid stages and the same was true of Metridia, but the Centropages were adults &

1782 On east end of Georges Bank - 300 cc total - less than 0.5 cc copepods all in the 3 bottles - all the copepods Centropages -

1783 The same as 1782 - 200 cc all sagittas except a very few scattered copepods - Centropages -

1786 Between Georges Bank & Browe's Bank 4 quarts mostly tunicates - 100 cc Copepods 10 cc taken -

Centropages & Pseudocalanus	trace
Metridia longa	0.25 cc
Calanus finmarchicus	9.75 cc
Sagitta elegans 8 specimens	
Pleuromamma gracilis - 4 specimens	

1789. East end of Georges Bank 100 cc Total nearly all sagittas all the copepods Centropages but very few in no.

1791. North & Georges Bank a short distance 250 cc Total 10 cc taken - 340 m - 0 m - Vertical -

Calanus finmarchicus	9.50 cc
Metridia longa	0.25 cc
Centropages & Pseudocal.	0.25 cc
Euchaeta norvegica	6 specimens
Pleuromamma gracilis	2 specimens -

1798 Opposite Cape Ann halfway to Brown's Bank. 100 cc Total Sept. 13, 1933 - 1600 - 6 m - Vertical 10 cc taken

Calanus finmarchicus	8 cc
Metridia longa	2 cc
Centropages - trace	15 or 20 Specimens
Euchaeta norvegica	7 specimens all juvenile

Many copepodid stages & badly parasitized

1799. Opposite Boston - South of Mt. Desert - 150 cc Total - 18 cc taken 185 m. Vertical - Sept. 13

Calanus finmarchicus	8.75 cc
Metridia longa	1.00 cc
Centropages	0.25 cc
Euchaeta norvegica	14 specimens -

		Calanus.		Centropages		Metridia		
No	factor	Sample	Total	S.	Total	S.	Total	( ) = no specimens
17 43	150/10	1.75	26	8	125	0.25	3.8	
17 45	450/10	6	270	1.75	89	2.25	101	Euchaeta now. Traces.
17 47	250/10	4.5	112	5.0	125	0.5	13	Euchaeta Tr.
17 48	300/10	8	240	1.5	45	0.5	15	Euchaeta few
17 50	50/10	0.40	2	9.50	48	0.10	0.5	
17 52	125/10	7.50	94	1.50	19	1.50	19	Pseudocal (10) = (125)
17 53	25/5	3	15	1.50	8	0.50	2.5	Pseudocal (2) = (10)
17 55	250/10	7.5	188	0.50	12	2.00	50	Pseudocal (2) = (50)
17 56	250/10	9	225	0.6	15	0.4	10	Pareuchaeta (12) = (300) Pseudocal. (50) = 1250
17 58	100/10	8	80	0.5	5	1	10	Pseudocal 0.5cc = 5cc
17 60	300/10	8	240	0.25	7.5	1.75	53	Euchaeta (8) = (240)
17 61	150/10	9	135	(5 spec)	(75)	1	15	Pseudocal (5 sp) (75) Euchaeta (3) = (45)
17 64	250/10	9	225	0	0	1	25	
17 65	850/10	10	850	0	0	(3)	(225)	Euchaeta (3) = (255)
17 67	250/10	9.5	237	Tr.	Tr.	0.5	13	
17 68	5/5	few						mostly crabs
17 69								Tunicates (no copepods)
17 70	200/10	9.5	190	0	0	0.5	10	
17 71(2)								Tunicates (no cop.)
(2b)	15/15	90%	13.5	0	0	10%	1.5	
17 72	250/10	9.25	230	0	0	0.70	18	Paracalanus parvus 0.05cc Euchaeta (12) = (300) Sapphirina
1774	10/10	1/4	2.5	3/4	7.5	(1)	(1)	
1775	4/4	7/8	3.5	1/8	0.5	0	0	
1777	200/10	10	200	(1)	(20)	(1)	(20)	Paracalanus
1779	3/3							
1782								
1783								

		Balance		Centrifuge	Matrices		
No	Factor	Samp	total				
1786	100/10	9.75	98	tr.	0.25	2.5	Pseudocalanus tr Sapphirina (8) Pleuromamma (4)
1789		0	0	few	0	0	
1791	250/10	9.50	237	0.25 = 8	0.25	8	Euchaeta (6) = (150) Pleuromamma (2)
1798	100/10	8	80	(15-20) (200)	2	20	Euchaeta (7) = (70)
1799	150/10	8.75	132	0.25 4	1.00	15	Euchaeta (14) = (210)

MARCH

APR. 21-28, 1934.

STATIONS 2019 TO 2070

Euchaeta

March.
cc/haul.

Metridia
cc/haul
March.

Calanus fin.
March.
cc/haul.

Pseudo Calanus.
March.
cc haul

2034 - South of Harpswell - 75 cc Total . 10 cc Taken

Calanus finmarchicus 4 cc
Metridia longa 5 cc
Pseudocalanus minutus 1 cc
Halitholestris crosii 5 specimens
Euchaeta norvegica 3 "

2036 South of Mt Desert 5 cc Total March 24. 1934 -

Calanus and Euchaeta 2 & 2
and Metridia 1 - very young copepodids of Metridia -

2037 North of 2036 - 75 cc Total 10 cc Taken

Calanus finmarchicus 8 cc
Metridia longa 1.50 cc
Euchaeta norvegica 0.50
Pseudocalanus trace
Pleuromamma gracilis 1 specimen

Very young copepodids of Metridia - and one of Euchaeta -

2038 North of 2037 - 1/2 cc Total -

Calanus - Metridia - Euchaeta and Pseudocalanus about evenly divided
Halitholestris crosii 5 specimens

2039 - Mouth of Bay of Fundy - 75 cc Total 10 cc Taken

Calanus finmarchicus 8 cc
Metridia longa 1 cc
Euchaeta norvegica 1 cc
Pseudocalanus trace -

2040 Mouth of Bay of Fundy near Nova Scotia - 1/4 cc Total

Calanus, Metridia, Pseudocalanus, & Euchaeta in proportions.
2 : 1/2 : 3 : 1

2053 Between Georges & Browns Banks 100 cc Total - 10 cc Taken - March 26,

Calanus finmarchicus - 9 cc
Metridia longa 0.10
Pseudocalanus minutus 0.90
Euchaeta 1 specimen
Halitholestris crosii 1 specimen

Xanthocalanus greeni Station 4655 –
5th leg 3-jointed – 2nd joint with 1 terminal and 1 inner spine but no outer one. 2 basal seg. with a fringe of hairs on inner margin –

Amallophora typica – Sta. 4673 –
Only one good specimen, the other two with broken appendages –

Pontella [illegible] 4617 –
The first antennae ♂ and the abdomen ♀ correspond – but the 5th legs ♂ are somewhat different – Drawings of these –

Euchirella specimens labelled by me Aetideus –
Shows rostrum and small 5th legs, nothing like Aetideus

Stations 20044 to 20129; Febnary – May, 1920.

CYCLOPOIDA

	I En.	I Ex.	III En.	III Ex	IV En	IV Ex	V En ♀	V Ex ♀	V En. ♂	V Ex. ♂	An¹ ♀	An¹ ♂	An² En	An² Ex	Abd ♀	Abd ♂
Anthessius	3	3	3	3	3	3	3	3	0	1	7	7	4	:0 p	3	4
Anchistrotos	1	1	3	3	3	3	3	3	0	1	6	6	3	:0 p	4	4
Arctopontius	3	3	3	3	3	3	2.r.	3	0	r.	8		4	:1	3	
Artotroqus	3	3	3	3	3	3	0	0	0	r.	9		4	:1 r.	3	
Artacolax	3	3	3	3	3	3	3	3	0	2	6		2	:0 p	3	
Ascomyzon	3	3	3	3	3	3	3	3	0	2	18	17	4	:1	2	3
Asterocheres Astericola	3	3	3	3	3	3	3	3	0	r.	8		4	:0 p	3	
Asteropontius	3	3	3	3	3	3	3	3	0	1	18/19		4	:1 p	2	
Bactropus	3	2	3	2	3	2	3	2	0	1	6	6	3	:0	1	
Bomolochus	3	3	3	3	3	3	3	3	0	2	6	6	4	0 p	3	3
Bradypontius	3	3	3	3	3	3	3.r.	3	r.	1	25	25	4	1	3	
~~Cancerina~~																
Canceritta	1	1	1	1	0	1	0	0	0	1	7		4	0 p	2	
Chonephilus	3	3	3	3	3	3	0	1	0	0	5	5	4	0 p	4	5
Chordeumium	0	1	r.	1	r.	1	r.	1	0	0	1	1	1	0		
Clausia	2	3	2	3	1	1	0	1	0	1	5		3	0	4	
Clausidium	1	3	3	3	3	3	3	3	0	1	7	7	4	0	2	3
Cletopontius	3	3	3	3	3	3	0	3	0	2			3/Basipod 2	p		
Collocheres	3	3	3	3	3	3	3	3	0	2	20	19	4	1	3	
Conaea	3	3	3	3	3	3	3	3	0	Seta only	6		3	0 p		
Conchocheres	3	3	3	3	3	3	3	3	0	1	6	6	3	0 p	3	3
Copilia	3	3	3	3	3	3	1	3	0	1	6		4	0 n.	3	
Corycaeus	3	3	3	3	3	3	1	3	0	1	6	6	3	0 p		2
Corycella	3	3	3	3	3	3	0	3	0	0	6	6	4	0 n.	2	
Cribropontius	3	3	3	3	3	3	3	3	0	1	9		4	1	3	
Cryptopontius	3	3	3	3	3	3	r.	3	r.	r.	9	10	4	1	3	4
Cyclopetta	3	3	3	3	3	3	3	3	0	1	9		4	0	3	
Cyclopina	3	3	3	3	3	3	3	3	0	2	10/18	10/18	4	0	3	3
Cyclopinella	3	3	3	3	3	3	3	3	0	3	12		4	0	3	
Cyclops	2-3	2-3	2-3	2-3	2-3	2-3	2-3	2-3	0	2	17	15	4	0		
Dermatomyzon	3	3	3	3	3	3	3	3	0	2	25	25	4	1	3	4
Diogenidium	3	3	3	3	3	3	3	3	0	1	8		4	0 p.		
Doropontius	3	3	3	3	3	3	3	3	0	2	17		4	1 p	2	
Dyspontius	3	3	3	3	3	3	0	3	r.	r.	9	11	4	1	4	45
Dystroqus	3	3	3	3	3	3	0	0	0	0	9	9	4	1	3	4

	I En.	I Ex	III En.	III Ex.	IV En.	IV Ex.	V En ♀	V Ex ♀	V En. ♂	V Ex. ♂	An¹ ♀	An¹ ♂	An² En.	An² Ex.	Urosome ♀	Urosome ♂
Echinocheres	3	3	3	3	3	3	3	3	0	2	20		4	1	2	
Ectocyclops																
Enteroqnathus	2	1	2	1	2	1	2	1	0	1	3		3	0		
Entobius	1	1	1	1	1	1	1	1	0	0	4	4	3	0	1	1
Ergasiloides	3	3	3	3	3	3	3	2	0	r.	5-6		3	0 p	2	3
Ergasilus	3	3	3	3	3	3	3	1-2	0	r.	6	6	3	0 p	3	3
Leptocyclops Eucyclops	3	3	3	3	3	3	3	3	0	1	12	12	4	0	3	3
Eunicicola	2	3	2	3	0	2	0	0			7	7	3	0 p	3	3
Euryte	3	3	3	3	3	3	3	3	0	2	21	21	4	0	4	5
Giardella	3	3	3	3	3	3	3	3	0	2	7	7	4	0	4	4
Goidelia	3	3	3	3	3	3	3	3	0	3	5	5	4	0 p.	1	1
Haematophilus	3	3	3	3	3	3	3	3	0	1	6		3	0 p.	3	
Halicyclops	3	3	3	3	3	3	3	3	0	2	6	11	3	0	3	3
Hermanella	3	3	3	3	3	3	3	3	0	1	7	7	4	0 p	4	4
Hersiliodes	3	3	3	3	3	3	3	3	0	1	7	7	4	0 x.	4	4
Platycyclops Heterocyclops	3	3	3	3	3	3	3	3	0	1	11	11	4	0 x.	3	
Hippomolqus	3	3	3	3	3	3	3	3	0	1	6	6	4	0 x.	3	3
Hyalopontius	3	3	3	3	3	3	3	3	0	2	11		2	0	3	
Irodes	1	1	3	3	3	3	3	3	0	2	4	4	4	0 p.	4	4
Lepeopsyllus	3	3	3	3	3	3	r.	3	0	1	13-15	13-15	4/Basipod 1	2. p.	3	3
Syn. ~~Leptocyclops~~	3	3	3	3	3	3	3	3	0	1	12	12	4	0	3	3
Leptomyzon	3	3	3	3	3	3	3	3	0	2	21	21	4	1	3	3
Lichomolgella	3	3	3	3	3	3	1	3	0	1	7	7	4	0 p	3	3
Lichomolgidium	3	3	3	3	3	3	3	3	0	1	7	7	3	0 p.		
Lichomolgus	3	3	3	3	3	3	2	3	0	1	7	7	4	0 p.	3	4
Linckiomolgus	3	3	3	3	3	3	2	3	0	1	8	8	4	0 p.		
Lubbockia	3	3	3	3	3	3	3	3	0	1	6	4	4	0 p.	3	4
Macrobrachinus	3	3	3	3	3	3	3	3	0	1	7		3	0 p	3	
Macrocheiron	3	3	3	3	3	3	2	3	0	1	7		3/4	0 p	4	
Makrocyclops	3	3	3	3	3	3	3	3	0	2	17		4	0		
Megabrachinus	3	3	3	3	3	3	3	3	0	1	8		3	0 p	3	
Megasanoixus	3	3	3	3	3	3	3	3	0	2	7		2	0	4	4
Mesocheres	3	3	3	3	3	3	3	3	0	2	21		4	1	2	
Mesocyclops	3	3	3	3	3	3	3	3	0	2	17		4	0	3	
Metopocatacoteinus	3	3	3	3	3	3	0	0	0	2	7		3	0 n.	4	

	II		III		IIII		IV		V ♀		V ♂		An¹		An²			Abd.			
	En.	Ex.	En.	Ex.	En.	Ex.	En.	Ex.	En.	Ex.	En.	Ex.	♀	♂	En.	Ex		♀	♂		
Metoponaraphrissontes	3	3	3	3	3	3	3	3	0	1			10		3	0		1			
Microcancerilla	3	3	3	3	3	3	0	0	0	0			6		unknown.			3			
Mikrocyclops	2	2	2	2	2	2	2	2	0	1			11		4	0	n.	4			
Modiolicola	3	3	3	3	3	3	3	3	0	1			7		4	0	p.	4			
Myicola	3	3	3	3	3	3	3	3	0	3			7		4	0	p.	3			
Myzopontius	3	3	3	3	3	3	3	3	0	1			12–25		4	1		3	4		
Neopontius	3	3	3	3	3	3	3	3	0	2			12	14	4	1		3			
Nicothoë	3	3	3	3	3	3	3	3	0	2			10		unknown.	0		4			
Obesiella	2	2	2	2	2	2	2	2	0	0			5		5	0	p.	3			
Oithona	3	3	3	3	3	3	3	3	0	r.			12	13	2	0	n.	3	4		
Oithonina	3	3	3	3	3	3	3	3	0	r.			9	9	3	0	n.	3	4		
Oithonopsis	2	3	2	3	2	3	2	3	0	1			13		4	1	n.	1			
Oncaea	3	3	3	3	3	3	3	3	0	1			6	4	3	0	n.	3	4		
Oncaeola	3	3	3	3	3	3	2	3	0	1			6		4	0	n.	5			
Ophthalmopachos	2	3	2	3	2	3	2	3	0	0			5		4	0	n.	3	4		
Pachos	3	3	3	3	3	3	3	3	0	1			5	8	4	0		2	3		
Pachycyclops	3	3	3	3	3	3	3	3	0	2			17		4	0		3			
Paclabius																					
Panaietis	3	3	3	3	3	3	3	3	0	1			7		2	0	p.	4			
Paracyclops	3	3	3	3	3	3	3	3	0	r.			10		4	0	n.	3			
Paralichomolgus	3	3	3	3	3	3	2	3	0	1			8		3	0	p.	3			
Parartotrogus	2	2	3	3	2	3	0	1	0	r.			9		4	1	p.	3			
Paroithona	2	3	2	3	2	3	2	3	0	r.			9		2	0	n.	3			
Phaqus	2	2	3	3	3	3	3	3	0	1			4		3	0	n.	4			
Pherma	1	2	1	2	1	2	0	0	0	0			6		4	0		1			
Pontoeciella	3	3	3	3	3	3	3	3	0	1 seta			8		4	1	n.	3			
Pseudanthessius	3	3	3	3	3	3	1	3	0	r.			7		4	0	p.	3			
Pseudoeucanthus	3	2	3	3	3	3	3	3	0	1			4		2	0	p.	2			
Pseudomolgus	3	3	3	3	3	3	3	3	0	1			7		3	0	p.	3			
Pterinopsyllus	3	3	3	3	3	3	2	3	0	3			8	12	3	0	n.	3	4		
Pteropontius	3	3	3	3	3	3	r.	3	r.	r.			8	10	3	0	n.	3	4		
Ratania	3	3	3	3	3	3	3	3	0	0			5		4	0	n.	3			
Rhinomolgus	3	3	3	3	3	3	3	3	0	1			7	5	5	0	p	3	4		
Rhodinicola	3	3	3	3	3	3	3	3	0	2			6		3	0		4			
Rhyncomyzon	3	3	3	3	3	3	3	3	0	2			16–20	14	4	1		3	4		
Synaptiphilus	2	3	2	3	2	3	2	3	0	2			6		3	0					

	II		III		IIII		IV		V				Au¹	Au²	Abd.		
	En.	Ex.	En.	Ex.	En.	Ex.	En.	Ex.	♀ En.	♀ Ex.	♂ En.	♂ Ex.	♀ ♂	♀ ♂	♀ ♂		
Sabelliphilus	3	3	3	3	3	3	3	3	0	1			7 :	4 : 0	3	p.	
Sapphirella	1	1	1	1	0	0	0	0	0	0			5 :	3 : 0	2	n.	
Sapphirina	3	3	3	3	3	3	3	3	0	1			5–6 :	4 : 0	4	p.	
Scottocheres	3	3	3	3	3	3	3	3	0	2			17 : 15	4 : 1	2 : 3		
Scottomyzon	3	3	3	3	3	3	3	3	0	2			18–22 : 16	4 : 1	2 : 3	n.	
Selenodiscus	1	1	1	1	0	1	0	0	0	0			5 :	4 : 0	2 :	n.	
Seridium	1	2	1	2	1	2	1	2	0	1			4 :	4 : 0	4 :		
Sestropontius	3	3	3	3	3	3	3	3	0	2			: 10	4 : 1	: 4	n.	
Stellicola	3	3	3	3	3	3	2	3	0	2			7 :	4 : 0	3 :	p.	
Stephopontius	1	1	2	2	2	2	0	2	0	?.			6 :	4 : 0	3 :	p.	
Synapticola	2	3	2	3	2	3	2	3	0	?.			7 : 7	3 : 0	3 : 3	p.	
Taeniacanthus	3	3	3	3	3	3	3	3	0	2			4 :	3 : 0	4 :	p.	
Terebellicola	3	3	3	3	3	3	3	3	0	2			6 :	3 : 0	5 :	p.	
Thersitina	3	3	3	3	3	3	3	2	0	0			6 :	3 : 0	4 :	p.	
Thoöstoma	2	2	2	2	2	2	2	2	0	?.			9 :	4 : 0	2 :		
Tucca	2	2	2	2	1	2	1	2	0	0			4 : 4	3 : 0	1 :	p.	
Uperogeos	3	3	3	3	3	3	3	3	0	0			10 or 12	4 : 0			
Urocopia	3	3	3	3	3	3	3	3	0	?.			6 :	4 : 0	3 :	p.	
Urogonia	3	3	3	3	3	3	3	3	0	?.			9 :	4 : 0	4 :	n.	
Vettoria	3	3	3	3	3	3	2	3	replaced by 3 setae				5 :	4 : 0	1 :	n.	
Pestalichomolgus	3 : 3		3 : 3		3 : 3		3 : 3		0	1			7	4 : 0	3	p.	
Sabellacheres	3 : 3		3 : 3		3 : 3		0	0	0	0			5 :		2 :		
Acontiophorus	3	3	3	3	3	3	3	3	0	2			11 : 11	4 : 1	2 : 3		
Asterocheres	3	3	3	3	3	3	3	3	0	2			18 : 17	4 : 1	2 : 3		
Paranthessius	3	3	3	3	3	3	3	3	0	1			7 :	4 : 0	4 :	p	
Antaria	3	3	3	3	3	3	3	3	0	1			6 :	3 : 0	4 : 5		
Arthrochordeumium	0	0	0	0	0	0	0	0	0	0			1 : 1	0 : 0			
Entomolepis –	3	3	3	3	0	0	0	0	0	0			10 :	3 : 1	1 :	p.	
Hemicyclops	3	3	3	3	3	3	3	3	0	2			7 :	5(?) 0	3	n.	
Metapontius	3	3	3	3	3	3	2	3	replaced by knobs.				14 :	4 : 0		n.	
Mytilicola	2	2	2	2	2	2	2	2	reduced to knob				4 :	4 : 0		p.	
Paurocope	1	1	1	1	0	0	0	0	0	0			5 :	3 0		p.	
Platycyclops	3 : 3		3 : 3		3 : 3		3 : 3		0	?.			10 :	4 : 0	3 :		
Pseudolichomolgus	2 : 2		2 : 2		2 : 2		2 : 2		0	1			7 :	4 : 0			
Pseudolubbockia	3 : 3		3 : 3		3 : 3		3 : 3		0	1			6 :	3 : 0		p.	
Pseudopsyllus	3 : 3		3 : 3		3 : 3		3 : 3		0	1			6 :	5 : 0			
Trochicola	1 : 1		1 : 1		1 : 1		1 : 1		0	?.			5 :	3 : 0	3		

CALANOIDA

	I En.	I Ex.	II En.	II Ex.	III En.	III Ex.	IV En.	IV Ex.	V ♀ En.	V ♀ Ex.	V ♂ En.	V ♂ Ex.	An¹ ♀	An¹ ♂	An² En.	An² Ex.	Urosome ♂	Urosome ♀
Osphranticum	3	3	3	3	3	3	3	3	3	3	3	r-2 l-3	24	24	2	7	5♂	4
Paracalanus	2	3	3	3	3	3	3	3	0	2	0	r-2 l-5	25	20	2	7		4
Paracartia	2	3	2	3	2	3	2	3	0	1	0	r-4 l-3	14	17	2	4	4	
Paradiaptomus	2	3	3	3	3	3	3	3	2	3	2	r-3 l-2						2
Paralabidocera	3	3	2	3	2	3	2	3	1	1	0	r-4 l-3	24	21			5	3
Paramisophria	3	3	3	3	3	3	3	3	0	2	0	4	21	21	2	6	5	4
Parapontella	3	3	2	3	2	3	2	3	1	1	3	3	20	17	2	5	5	3
Phaënna	1	3	2	3	3	3	3	3	0	0	0	r-4 l-5	24	r-15 l-17			5	4
Phyllopus	3	3	3	3	3	3	3	3	0	3	0	3	24	20			5	4
Pierocalanus	2	3	3	3	3	3	3	3			0	r-2 l-6	25		2	2	5	
Platycopia	2	2	3	3	3	3	3	3	3	3	3	3	23	16	2	5	4	4
Pleuromamma	3	3	3	3	3	3	3	3	0	3	0	4	23	21	2	7	3	3
Pontella	3	3	2	3	2	3	2	3	1	1	0	4	24				4	2-3
Pontellina	3	3	2	3	2	3	2	3	1	1			17-19					2
Pontellopsis	3	3	2	3	2	3	2	3	1	1			16	16			1-2	1-2
Pontoptilus	3	3	3	3	3	3	3	3	3-2	3-2							5	4
Poppella	3	3	3	3	3	3	3	3	0	3	1	2	25		2	5		
Pseudaetideus	1	3	2	3	3	3	3	3	0	0	rud.	5	23					
Pseudeuchaeta	1	3	2	3	3	3	3	3										
Pseudocalanus	1	3	2	3	3	3	3	3	0	0	0	r-4 l-5	24	19	2	7	5	4
Pseudocyclopia	1	3	2	3	3	3	3	3	0	3	0	r-3 l-4	20		2	6	5	4
Pseudocyclops	3	3	3	3	3	3	3	3	3	3	1	2	18	18	2	3	4	3
Pseudodiaptomus	3	3	3	3	3	3	3	3	0	2-3	rud.	r-2 l-2	20-22		2	2-4		3-4
Pseudoboeckella	3	3	3	3	3	3	3	3			r-3 l=rud.	2	25					
Pseudophaenna	1	3	2	3	3	3	3	3	0	2	0	r-5 l-6	23	21	2	6	5	4
Parastephos	1	3	2	3♂ 3♀	3	3	3	3	0	2	0	4	23		2	6	4	3
~~Pseudopontella~~																		
Pseudotharybis	1	3	2	3	3	3	3	3	0	3			24		2	7		4
Rhapidophorus	3	3	3	3	3	3	3	3	1	2			22		2	6		
Rhincalanus	2	2	3	3	3	3	3	3	0	2			23		2	8		3
Ridgewayia	3	3	3	3	3	3	3	3	2	3			25		2	8		4
Scolecithricella	1	3	2	3	3	3	3	3	0	1	0	r-4 l-2	22	18	2	6	5	4
Scolecithrix	1	3	2	3	3	3	3	3	0	1-3			19-24	17-24			5	4
Scopiphora																		
Scottocalanus	1	3	2	3	3	3	3	3	0	3	r. 3 l. 2	2 2						3
~~Pseudochirella~~																		

CALANOIDA

	I En.	I Ex.	II En.	II Ex.	III En.	III Ex.	IV En.	IV Ex.	V ♀ En.	V ♀ Ex.	V ♂ En.	V ♂ Ex.	An¹ ♀	An¹ ♂	An² En.	An² Ex.	Urosome ♂	Urosome ♀
Scottula	3	3	3	3	3	3	3	3	0	3	0	5	l-20 r-19	l-20 r-19	2	5	5	4
Sinocalanus	3	3	3	3	3	3	3	3	3	3	3	3	25	25	2	8	4	3
Spinocalanus	1	3	2	3	3	3	3	3	0	0		r-4	23		2	7		4
Stephos	1	3	2	3	3	3	3	3	0	3	0	l-5	24		2	6	5	4
Temora	2	3	2	3	2	3	2	3	0	3	0	3	24		2	7	5	3
Temorites	2	3	3	3	3	3	3	3	0	3	0	3	24		2	7		3
Temoropia	2	3	3	3	3	3	3	3	0	3	0		22-23		2	7	5	4
Tharybis	1	3	2	3	3	3	3	3	0	3	r. 0 l. 3		24		2	6	4	3
Tortanus	2	3	2	3	2	3	2	3	0	2-3	0	4	17-18	12-14				2-3
Undeuchaeta	1	2	1	3	3	3	3	3			r. 0 l. 3	3	23	21			5	4
Undinella	1	3	1	3	2	3	2	3	0	3	r. 2 l. 3	3	24	23			4	3
Undinopsis	1	3	2	3	3	3	3	3	0	0	r. 0 l. 3	3	24		2	7	4	4
Valdiviella	1	2	1	2	2	3	2	3	0	0	1	1	25		2	7		4
Xanthocalanus	1	3	2	3	3	3	3	3	0	3	r. 3 l. 6		24		2	6	4	3
Chiridiella	1	1	1	3	3	3	3	3	0	0			24					
Macandrewella	1	3	2	3	3	3	3	3	0	1	1	2	23		2	6	3♀	
Racovitzanus	1	3	2	3	3	3	3	3	0	2			22		2		3♀	
Cephalophanes	1	3	2	3	3	3	3	3	0	3								
Bradycalanus	3	3	3	3	3	3	3	3	3	3	unk.		25		2	7	3♀	
Oxycalanus	1	3	2	3	3	3	3	3	0	0	unk.		24		2	7	3♀	
Gaidiopsis	1	3	2	3	3	3	3	3	0	0			24		2	7	3♀	
Paraeuchaeta	1	3	1	3	3	3	3	3	0	0			23					
Scaphocalanus	1	3	2	3	3	3	3	3	0	2/3	r. 2 l. 3	3	23		2	6	3♀	
Heteramalla	1	2	2	3	3	3	3	3	0	2			24				3♀	
Brachycalanus	1	3	2	3	3	3	3	3			1	2	24		2	6	4♀	
Mesorhabdus	3	3	3	3	3	3	3	3	3	3	unk.		25	21			3♀	
Paraugaptilus	3	3	3	3	3	3	3	3	0	1	2	2	20		2	3	3♀	
Neopontella	3	3	2	3	2	3	2	3	0	1	0	2	18				3♀	4♂
Centraugaptilus																		
Pseudaugaptilus																		
Euaugaptilus																		
Heteroptilus																		
Pachyptilus																		
Paracalocalanus																		
Asquptalina																		
Farrania																		
Scaphocalanus																		

CALANOIDA

	I En.	I Ex	II En	II Ex	III En	III Ex	IV En	IV Ex	V ♀ En	V ♀ Ex	V ♂ En	V ♂ Ex	An.¹ ♀	An.¹ ♂	An.² En	An.² Ex	Urosome ♂	Urosome ♀
Acartia	2	3	2	3	2	3	2	3	0	3	0	4	17-18	12-14	2	3	5	4
Acrocalanus	2	3	3	3	3	3	3	3	o	o			25	19			5	4
Adiaptomus																		
Aetidiopsis	1	3	2	3	3	3	3	3	o	o			23		2	7		4
Aetidius	1	3	1	3	3	3	3	3	o	o	o	left 5	23	20	2	7		
Amallophora	1	3	2	3	3	3	3	3	o	2-3	o	3	23	20	2	6	4	4
Anomalocera	3	3	2	3	2	3	2	3	1	2	o	3	21	21	3	5	5	4
~~Aphetura~~ larval stage of Pontella	1	2	1	2	1	2	1	2	0	0	0	2	~~20~~	~~19~~			3	2
Arietellus	3	3	3	3	3	3	3	3	0	1	1	3	20	19				4
Augaptilus	3	3	3	3	3	3	3	3	3-2	3-2	3	3	25	25	2	8	5	3
Bathycalanus	3	3-2	3	3	3	3	3	3					25					4
Bathypontia	2	3	3	3	3	3	3	3	o	3			25					4
Boeckella	3	3	3	3	3	3	3	3			1-3	2	25					3
Bradyetes	1	3	2	3	3	3	3	3			o	5	24	25				4
Bradyidius	1	3	2	3	3	3	3	3			o	5	24	25				4
Calamoecia	2	3	2	3	2	3	2	3	2	3	2	2	24	15	2	6	5	4
Calanopia	2	3	2	3	2	3	2	3	o	3-4	o	4	17				5	2
Calanops	a synonym of Pontellina																	
Calanus	3	3	3	3	3	3	3	3	3	3	r. 3-3 l. o-3		25	20	2	7		4
Candacia	2	3	2	3	2	3	2	3	o	3	o	r-3 l-4	23					3
Centropages	3	3	3	3	3	3	3	3	3	3	3	r-3 l-2	24	21-22				3
Chiridius	1	3	1-2 ♀ 2-3 ♂	3	3	3	3	3	o	o	5	o	23	23	2	7		4
Chirundina	1	3 ♂ 2 ♀	1-2 ♀ 3 ♂	3	3	3	3	3	o	o	1	3						3
Clausocalanus	1	3	2	3	3	3	3	3	o	3	o	l-5 r-1-3	23	20	2	6		4
Comantenna	1	3	2	3	3	3	3	3	o	o			24		2	6		4
Cornucalanus	1	3	2	3	3	3	3	3	o	3	o	r-3 l-5	24	24			4-3	
Ctenocalanus	1	3	2	3	3	3	3	3	o	3	o	r-1 l-5	25		2	6		
Diaixis	1	3	2	3	3	3	3	3	o	o	o	r-2 l-4	24		2	6		4
Diaptomus	2	3	3	3	3	3	3	3	1	3	2	2	25	25	2	7	5	2-3
Disseta	3	3	3	3	3	3	3	3	3	3	3	3	25	21			5	4
Drepanopus	1	3	2	3	3	3	3	3	o	2	rud.	2		21			4	3
Epischura	1	3	1	3	1	3	1	3	o	3	o	3 r-2	25	25 genic			5 prchon.	2-3
Eucalanus	2	3	3	3	3	3	3	3	o	o	o	r-0 l-4	23				5	3-4
Euchaeta	1	2	1	3	3	3	3	3	o	o	1	r-2 l-3	23				4	
Euchirella	1	2	1	3	3	3	3	3	o	o			23	21			5	4

CALANOIDA

	I En.	I Ex.	II En.	II Ex.	III En.	III Ex.	IV En.	IV Ex.	V ♀ En.	V ♀ Ex.	V ♂ En.	V ♂ Ex.	An.¹ ♀	An.¹ ♂	An.² En	An.² Ex	Urosome ♂	Urosome ♀
Subgen. Euponteella	2	3	2	3	2	3	2	3	rud.				24					
Eurytemora	1	3	2	3	2	3	2	3	0	4	0	3 r-5 r.	24	21	2	7	4	3
Gaetanus	1	2-3	2	3	3	3	3	3			1	3	24	22			5	4
Gaidius	1	2	1	3	3	3	3	3	o	o			23	20	2	7		4
~~Gaussia~~ Gaidiopsis																		
~~Gigantella~~	a synonym of Parabroteas Mrazek, 1901																	
Guernella	3	3	3	3	2	2	1	2	1	1			25		4	6		
Haloptilus	3	3	3	3	3	3	3	3	3	3			25		3	7	5	4
Heterocope	1	3	1	3	1	3	1	3	0	4	0	2	25		2	6		
Heterorhabdus	3	3	3	3	3	3	3	3	3	3	3	3	25	21	2	7	4	3
Isias	3	3	3	3	3	3	3	3	1	3	rud.	2					3	3
Isochaeta	3	3	3	3	3	3	3	3	2									
Isocope	3	3	3	3	3	3	3	3			0	r-5 l-2	24	24	2	3		4
~~Iva~~ Pontella																		
Irellopsis	3	3	2	3	2	3	2	3	1	1	0	2	22	18			4	2
Labidocera	2	3	2	3	2	3	2	3	1	1	r.o—5 l. 1—2		23	19	2	6	5	2-3
Lamellipodia	1	3	1	3	1	3	1	3	0	3	0	r-3 l-1						
Lampidopus	3	3	3	3	3	3	3	3	2	3	1	r-2 l-3	25	r-23 l-25	2	8	4	3
Limnocalanus	3	3	3	3	3	3	3	3	3	3	3	2	25	13	2	7	4	3
Lophothrix	1	3	2	3	3	3	3	3	o	1-3			19-24	17-24			4	3
Lucicutia	2	3	3	3	3	3	3	3	3	3	r-3—3 l. 2—2		25	22	2	8	5	4
Macrocalanus	3	3	3	3	3	3	3	3	3	3			25		2	7		4
Mecynocera	1	3	3	3	3	3	3	3	0	5			24					3
Megacalanus	3	3	3	3	3	3	3	3	3	3	3	3	25		2	7	5	4
Metabocckella	2	3	3	3	3	3	3	3	2	3			25					3
Metacalanus	3	3	3	3	3	3	3	3	0	1	0	3	17-18 r-25 l-14	1.15	-			4
Metridia	3	3	3	3	3	3	3	3	0	4	0	4	24		2	6	4	3
Microcalanus	1	3	2	3	3	3	3	3	0	0			24		2	6		4
Mimocalanus	1	3	2	3	3	3	3	3	0	2	3	3	25	25			5	4
[illegible]	3	3	2	3	2	3	2	3	0	1	0	3	16				5	4
Monacilla	1	3	2	3	3	3	3	3	0	rud.								
Mormonilla	2	2	2	2	1	2	1	2	0	0			5		2	8		3
Neoscolecithrix	1	3	2	3	3	3	3	3	0	3	0				2		3	
Onchocalanus	1	3	2	3	3	3	3	3	0	4			24	17			5	4
Parabroteas	3:3		3:3		3:3		3:3											

NOTODELPHYOIDA

	I		III		IIII		IV		V ♀		V ♂		An.¹		An.²		Abd.		Eggs
	En.	Ex.	En.	Ex.	En.	Ex.	En.	Ex.	En.	Ex.	En.	Ex.	♀	♂	♀	♂	♀	♂	
Adranesius	0	2	0	2	0	2	0	2	0	0			33		2				Pouch
Agnathaner	3	3	3	3	3	3	3	3	0	2	0	2	10	13	3	3	3	4	Pouch
Ascidicola	♀ 2 ♂ 3	2 3	2 3	2 3	2 3	2 3	2 3	2 3	0	1 rud.	0		6	6	3	3	4	4	2 Sacs
Bonnierilla	3	3	3	3	3	3	3	3	♀ 0 ♂ 1	2			8	8	3	3	5	5	Pouch
Botachus	3	3	3	3	3	3	3	3	0	2			8-9		4	3	4		Pouch
Botryllophilus	♀ 1-2 ♂ 1-3	1-2 1-3	1-2 1-3	1-2 1-3	1-2 1-3	1-2 1-3	1-2 1-3	1-2 1-3	0	1			5-7		3		4-8	6-8	Sacs
Buprorus	1	2	1	2	1	2	1	2	♀ 0 ♂ 0				3		3		0	0	Pouch
Campopera	1	2	1	2	1	2	1	2	0	1			2		3		4		Pouch
Chelonidiformis	1	1	1	1	1	1	0	0	0	0			6		3				
Cryptopodus	1	1	1	1	1	1	1	1	0	1			4		3				
Doroixys	3	3	3	3	3	3	2	3	0	1			7-8		3		4		Pouch
Doropygella	3	3	3	3	3	3	3	3	0	2	0	2	8	8	3	3	4	4	Pouch
Doropygopsis	3	3	3	3	3	3	3	3	0	2	0	2	9	10	3	3	4	4	Pouch
Doropygus	3	3	3	3	3	3	3	3	0	2	0	2	9	9	3	3	4	4	Pouch
Enterocola	♀ 1 ♂ 3	1 3	1 3	1 3	1 3	1 3	1 3	1 3	0	1			11+	8	5-6	3	4	5	2 Sacs
Enteropsis	♂ 2-3 ♀ 0-2	2-3 1-2	2-3 0-2	2-3 1-2	2-3 0-2	2-3 1-2	2-3 0-2	2-3 1-2	0	0 rud.	0	0	1-3	7	3-4	14+	1	1	1 Sac
Gastrodelphys	1	3	1	3	0	2	0	0	0	0			5	4	4		3	3	Pouch
Goniodelphys	3	3	3	3	3	3	3	3	1	1			8	8	3	3	5	5	2 Pouches
Gunentophorus	3	3	3	3	3	3	3	3	0	0 rud.			4		3		4		Pouch
Hypnoticus	1	1	1	1	1	1	1	1	0	0			1		2				2 sacs
Hypogastrion	3	3	3	3	3	3	3	3	0	0			9-10		3		5		Pouch
Ive	1	1	1	1	0	0	0	0	0	0	0	0	1				1		2 Sacs
Lamippe	0	1	0	1	0	1	0	0	0	0	0	0	3		3		1		Pouch
Leanella	0	0	0	0	0	0	0	0	0	0	0	0	1 rud.		0		0	0	Sacs
Lonchidiopsis	2	2	2	2	2	2	2	2	0	1			8				3		Pouch
Lygephilus	1	1	1	1	1	1	1	1	0	0	0	0	3	3	2	2	4	4	2 Sacs
Melinnacheres	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	1	1	1	2 Sacs
Mychophilus	0	1	0	1	0	1	0	1	0	0				1-3	2				2 Sacs
Narcodina	0	0	0	0	0	0	0	0	0	0			3		3		3		
Nereicola	1	1	1	1	1	1	0	0	0	0	0	0	3		3		1		2 Sacs
Notodelphyopsis	3	3	3	3	3	3	3	3	0	0			8		2		4		Pouch
Notodelphys	3	3	3	3	3	3	3	3	0	2	0	2	15	11	3	3	4	4	Pouch
Notopterophoroides	2	3	3	3	3	3	3	3	1	1			7		3		4	4	Pouch
Notopterophorus	2	3	2	3	2	3	2	3	0	2			9	8	3	3	4	3	Pouch

	I		III		IIII		IV		V ♀		V ♂		An.¹		An.²		Abd.		Eggs
	En.	Ex.	En.	Ex.	En.	Ex.	En.	Ex.	En.	Ex.	En.	Ex.	♀	♂	♀	♂	♀	♂	
Ophioseides	1	1	1	1	1	1	1	1	0	0			5		2		1		Pouch
Pachynesthus	0	3-2	0	3-2	0	3-2	0	3-2	0	0			5		5		1		2 Sacs
Pachypygus	3	3	3	3	3	3	3	3	0	2			7		3		4		Pouch
Paranotodelphys	3	3	3	3	3	3	3	3	0	♂			9		3	3	4		Pouch
Platythorax	2	3	2	3	2	3	2	3	0	0			12				4		Pouch
Podolabis	1	2	1	2	1	2	1	2	1	1			3				2-3		2 Sacs
Polycinophilus	1	3	1	3	0	0	0	0	0	0			6						
Polyoon	0	2-3	0	2-3	0	2-3	0	2-3	0	0			5		3		3		2 Sacs
Sabellacheres	3	3	3	3	3	3	0	0	0	0			4				3		
Tranestoma	1	1	1	1	1	1	1	1	0	0-1			5-8		2	2	3		2 Sacs
Zanclopus	1	1	1	1	1	1	1	1	0	1			1		1		1		2 Sacs
Anomopsyllus	0	1	0	1	0	1	0	0	0	0			7		3		3		
Blakeanus	3	3	3	3	3	3	2	3	0	1			4		3		4		2 Sacs
Cataceutes	2	3	2	3	2	3	2	3	0	2			5		3				
Pteropygus	1	1	1	1	1	1	1	1	0	1			6		3		3		1 sac
Schizoproctus	1	1	1	1	1	1	1	1	0	1			4		3		5		1 sac
Selioides																			
Selius																			
Aplopodus	0	1	0	1	0	1	0	1	0	0			3		2				

Fish Hawk

Date		Hour	Lat. N.	Long. W.	Depth	Temp. surface	Temp. bottom	
2038								
2079								
2071								
2072								
2075	Sep. 1, 1883		39 41 30	71 01 27	1000		39°	
2076								
2101	Oct 2, 1883		39 18 30	68 24 00				
2173	July 26, 1884	6.24 A.M.	37 57 30	72 34 00	1600		37°	
2183								
2184	Aug. 5, 1884	2.54 P.M.	39 43 45	70 07 00		74°		
2185	Aug. 5, 1884	6.48 P.M.	39 44 00	70 03 00	1058		38.4°	90 miles S. of Nantucket
2204								
2210	Aug. 21, 1884	11.14 P.M.						
2218	Aug. 23, 1884	1.34 P.M.	39 46 22	69 59 00	948		38.8°	
2227	Sep. 1, 1884	5.17 P.M.	37 48 30	69 43 30		75°		
2228								
2229	Sep. 1, 1884	4.12 P.M.	37 38 40	73 16 30			37°	
2230	Sep. 1, 1884	4.37 A.M.	38 27 00	73 02 00	1163		36.8°	160 miles S. Long Island
2235	Sep. 13, 1884							
2236	Sep. 13, 1884							
2643	Apr. 2, 1886	11.54 A.M.	35 25 00	74 55 15	153	74°	43.1°	
2710	Aug. 1, 1886	[illegible] P.M.	40 24 00	68 51 30	914			
2711	Sep. 1, 1886	3.4[illegible] P.M.	38 59 00	70 07 00	1549			
2715	Sep. 8, 1886	5.15 A.M.	38 29 30	70 59 30	1753			
2042								
2237	Sep. 1, 1884							

	Date	Hour	Lat. N.	Long. W.	Depth fathoms	Surface	Bottom
935	Aug. 4						
935	Aug. 4, 1881	8.14 A.M.	39 45 00	69 44 45	782	70	39.5
945	Aug. 23 "	4.20 A.M.	40 03 00	70 31 00	100	66	52
951	Aug. 23 "	9.40 A.M.	39 57 00	70 31 30	225	67.5	41
953	Aug. 23 "	2.30 P.M.	39 52 30	70 17 30	729	68	39.5
954	Aug. 23 "	4.50 P.M.	39 53 00	70 18 30	651	68	39.5
955	Aug. 26 "	10.50 A.M.	Nye's Neck E. by S. ¼ mile		7	67.5	68
956	Aug. 26 "	11.26 A.M.	" " SSE, ¾ E, ⅛		5.25	69	68
957	Aug. 26 "	11.45 A.M.	" " " " "		6	69.5	68
958	Aug. 26 "	12.20 P.M.	" " S by E ¼ E. ⅛ "		5	70	68
959	Aug. 26 "	12.40 P.M.	" " S — ½ mile		5	69	68
960	Aug. 26 "	1.10 P.M.	" " S. ¾ E ½ mile		4½	69.5	68
961	Aug. 26 "	1.52 P.M.	" " NE ¾ E 2¾ mile		8	69	68
981	Aug. 30 "	2.10 P.M.	Chatham Lights W. NW 16 mi		43	63.5	49
982	Aug. 30 "	2.45 P.M.	41 36 00	69 35 00	42	63.5	41.5
983	Aug. 30 "	3.25 P.M.	41 33 00	69 32 00	36	64	42
984	Aug. 30 "	4.07 P.M.	41 31 00	69 28 00	33	63.5	41.5
985	Sep. 7 "	12.55 P.M.	41 00 00	70 49 00	26	66	50
986	Sep. 7 "	2 P.M.	40 55 00	70 48 00	28	67	49
993	Sep. 7 "	8.20 P.M.	40 28 00	70 44 00	39	65	46.5
994	Sep. 8 "	4.50 A.M.	39 40 00	71 30 00	368	68	40
1027	Sep. 14 "	7.23 A.M.	40 ——	69 19 —	93	65	49.5
1029	Sep. 14 "	12.13 P.M.	39 57 06	69 16 —	458	68	40
1031	Sep. 14 "	2.59 P.M.	39 57 —	69 19 —	255	65	46
1032	Sep. 14 "	4 P.M.	39 56 —	69 22 —	208	65	46
1039	Sep. 21 "	9.35 A.M.	39 59 —	70 06 —	130	67	50
1089	Aug. 3, 1882	11.10 A.M.	Gay Head Light S W. ¾ W 14 m.		110	63	38.5
1107	Aug. 22 "	6 A.M.	40 02 —	70 35 —	116	71	48
1108	Aug. 22 "	6.55 A.M.	40 02 —	70 37 30	101	71	48
1114	Aug. 22 "	2.40 P.M.	39 58 —	70 38 —	171	72	48
1139	Sep. 8 "	8.48 A.M.	39 37 —	71 55 —	291	72	49.
925	July 16 1881	3.35 P.M.	39 55 00	70 47 00	229	71	42
1028	Sep. 14 1881	9.01 A.M.	39 57 00	69 17 00	410	66	41

Compass

		Lat N.	Long W.	Depth meters	
236					
627					
1119					
1222					
10253					
10298	June 24 1915	42 22 00	64 16 00	500	
~~10299~~	~~Aug. 12. 1914~~	42 49 00	66 51 00	100	
20098					
20099					
20119					
567					
568					
10331	Oct 22 1915	41 19 00	70 55 00	34	5 mi. SW. Gay Head.
20069					
10182					
10185					
~~10209~~	~~Aug 6 1915~~	43 32 00	67 35 00	218	
10323					
9562					
20177					
20103					
10313					
20115					

CALIGOIDA

Genus	I Ex	I En	II Ex	II En	III Ex	III En	IV Ex	IV En	V	VI	Dorsal Plates 1	2	3	4	Abdomen Segts.	Genital Segt.	Maxillae	2° Ant.	1° Ant
Abasia	3	0	3	3	3	2	3	0	0	0	0	0	0	0	2	large as carapace	rud.	not chelate	
Achtheinus	2	2	2	2	2	2	1	1	1		×	fused ×		×	1	fused plates	2-jointed	claw	
Alebion	2	2	3	3	3	3	1	0	×♂ 0♀	×♂ 0♀	0	0	0	×	2	no plates			
Anchicaligus	2	0	3	3	2	1	2	0	×♂	×♂	—				1	no plates	1-joint	claw	
Anthosoma	plates		plates		plates		uniting		uniting		—			×	1	no plates	spine, bifurcate	claw	
Anuretes	2	0	3	3	2	1	3	0	×	0	—			→	0	no plates	1-joint	claw	
Areotrachelus	—								—		—					no plates			
Bassettithia	biramous partly		biramous partly		biramous partly		1	1	—		—				1	no plates	spines bifurcate	2-seg claw	9seg.
Caetrodes	2	2	2	2	—						—				1	no plates	2 seg uni	2-seg claw	5
Caligeria	3	0	3	3	3	3	3	2	—		—			×	2	no plates	1 seg spines	uni claw	2
Caligodes	3	0	3	3	3	3	2-4	0	—		—					no plates	1 seg uni	uni claw	2
Caligus	3	0	3	3	3	2	4	0	×	×	—				1-4	no plates	1 seg spine	uni claw	2
Calina	2	2	3	3	3	2	4	0	—		—				1	—	bifurc	uni claw	2
Calistes	3	0	3	3	3	3	3	3	—		—				2	—	bifurc	uni claw	2
Cardiodectes	2	2	2	2	2	0	biramous partly		—		—				1	—	uni 1 seg	uni chela	2
Cecrops	2	2	2	2	2	2	1	1	—					×		fused plates	uni 1 seg	uni claw	2
~~Colacentes~~	3	2	3	2	3	2	3	2	uni 2seg.		—				4♂ 3♀	—	seta	3 seg claw	6
Collipravus	2	2	2	2	2	0	2	0	1		—				1	—	uni 3-seg	3 seg chela	2
Congericola	1	1	1	1	1	1	1	1	—		—				1	—	uni 1 seg	2 seg claw	6
Cybicola	1	1	2	0	1	0	—		—		—				0	—	3 seg claw	1 seg claw	7
Demoleus	2	2	2	2	2	2	2	2	—		—				2	—	1 seg seta	3 seg claw	2
Dentigryps	3	0	3	3	3	2	4	0	—		—			2 joint	1	plate	1 seg spine	claw	2
Dichelesthium	2	2	2	2	1	1	1	0	—		—				1	—	biramous	3 seg chela	8
Dinematura	2	2	3	3	3	3	1	1	—					×	1	×	3 seg spine	3 seg claw	2
Diphyllogaster	3	0	3	3	3	2	4	0	—		—				1	—	1 seg spine	2 seg claw	2
Dissonus	2	2	3	3	3	3	3	3	×	—	—				1	—	uni 1 seg	2 seg claw	2
Donusa	3	3	3	3	3	3	3	3	biram 3-3	—	—				3	—	uni 1 seg	uni seta	5
Dysgamus	2	2	2	2	2	2	2	2	—		—				2	—	uni spine	claw	2
Echetus	3	0	3	3	3	2	2	0	—		—				1	—	uni spine	claw	2
Echthrogaleus	2	2	2	2	2	2	1	1	—		—			×	1	×	uni spine	claw	2
Elytrophora	2	2	3	3	3	3	3	2	—		—			×	2	—	spine	claw	2
Ergasilina	2	0	2	0	2	0	2	0	—		—				1	—	3 seg claw	claw	5
Eudactylina	2	2	3	3	3	3	3	3	uni 1	—	—				1-3	—	biramous spines	3 seg claw	4-8
Euryphorus	2	2	3	3	3	3	3	2	—		—			×	2	—	spine	claw	2
Gangliopus	1	2	2	2	2	2	1	1	—		×	×	×	×	2	—	spine	claw	2

1° Ant	Genus	I Ex	I En	II Ex	II En	III Ex	III En	IV Ex	IV En	V	VI	Dorsal Plates 1	2	3	4	Abdomen Segts.	Genital Segt.	Maxillae	
2	Gloiopotes	3	0	3	3	3	3	4	0	—					×	2	bilobed	bifur.	claw
3	Haemobaphes	2	2	2	2	1	0	1	0	—		—				1	fused	2-seg chela	claw
	Haemobaphoides	no data available																	
3-5	Hatschekia	1	1	1	1	rud	rud			—		—				1	—	uni-1	2-claw
2	Hermilius	3	0	3	3	3	3	1-3	0	—		—				1	—	uni-2	claw
2	Homoiotes	3	0	3	3	3	3	4	0	—		—				1	×	uni-1	claw
7-8	Krøyeria	3	3	3	3	3	3	3	3	—		—				1	—	uni-2	3 chela
?	Lamproglena	2	2	2	2	2	2	2	2	uni 1-0	—	—				3	—	?	4 seta
2	Lepeophtheirus	3	0	3	3	3	3	4	0	×	×	—				1-3	—	bifurc	claw
2	Lepimacrus	3	3	3	3	3	3	3	3	—		×	×	×	×	1	×	spine	claw
4	Lernaea	3	3	3	3	3	3	3	3	uni 2	—	—				2	—	spine	2-claw
2	Lernaeenicus	1	1	1	1	1	0	1	0	—		—				1	—	3-spine	2 chela
3	Lernaeocera	2	2	2	2	2	0	2	0	—		—				1	—	bifur-	2 chela
5	Lernaeogiraffa	3	3	3	3	3	3	3	0	—		—				3	—	?	1 seta
2	Lernaeolophus	2	2	2	2	2	0	2	0	—		—				1	—	rud-	2 chela
1-?	Lernanthropus	1	1	1	1	1	1	1	1	—		fused plate				1	—	1 spine	1 claw
2	Luetkenia	3	0	2	2	2	2	2	0	—					×	1	×	1 spine	1 claw
2	Midias	3	0	3	3	3	3	4	0	X,	—	—				2	—	1 spine	
11-15	Nemesis	2	2	2	2	2	2	2	2	uni 2	—	—				3	—	biramous spines	2 claw
2	Nesippus	2	2	2	2	2	2	1	1	—		—			×	1	—	1 spine	2 claw
6	Norion	1	0	—								—				0	—	uni 2 seg	2 claw
2	Orthagoriscicola	2	2	2	2	1	1	1	1	—					×	1	×	spine	2 claw
2	Pandarus	2	2	2	2	2	2	1	1	—		×	×	×	×	2	×	spine	2 claw
2	Paralebion	2	2	3	3	3	3	4	0	uni 2-	—	—				1	—	spine	2 claw
2	Parapetalus	3	0	3	3	3	3	4	0	0	—	—				1	—	spine	2 claw
?	Peniculisa	1	1	1	1	1	1	1	1	—		—				1	—	0	2 claw
2	Peniculus	basal plates only, no rami										—				1	—	uni 1 seg	2 claw
3	Pennella	basal plates only, no rami										—				1	—	× 0	2 chela
2	Perissopus	2	2	2	2	2	2	1	1	—			×	×	×	1	×	spine	claw
3	Peroderma	2	2	2	2	2	0	—				—				0	—	spine	2 claw
2	Philorthragoriscus	2	2	2	2	2	2	1	1	—			×	×	×	1	×	uni spine	2 claw
2	Pholidopus	3	0	2	2	1	1	1	1	—				×	×	1	×	spine	2 claw
1	Phrixocephalus	1	1	1	1	1	0	1	0	—		—				1	—		2 chela
3	Phyllothyreus	1	1	1	1	2	2	1	1	—		×	×	×	×	1	×	spine	2 claw
2	Prosaetes	2	2	2	2	2	2	1	1	×	0	—				1	—	1 spine	4 claw

2nd ant.	1st ant.	Genus	Ex	En	Ex	En	Ex	En	Ex	En	V	VI	Dorsal Plates 1	2	3	4	Abdomen Segts	Gen. Segt.	Maxillae
2-claw	2	Pseudocaligus	3	0	3	3	3	3	fused only		X	—	—				1	—	uni spine
2-claw	3	Pseudoclavella	2	1	2	2	1	0	1	0	—		—				1	—	uni setae
2 claw	1	Pseudocycnus	1	0	1	1	1	0	1	0	—		—				1	—	seta
2 claw	6	Saqum	1	1	1	1	1	1	1	1	—		fused and 1 plate				1	—	3-setae
2 chela	1	Sarcotretes	2	2	2	2	2	0	0	0	—		—				1	—	2-claw
2 claw	2	Sciaenophilus	3	0	3	3	3	3	4	0	—		—				1	—	uni claw
		~~Sylvestria~~																	
2 claw	2	Synestius	3	0	3	3	3	3	4	0	—		—				2	post process	uni spine
		~~Taeniacanthus~~																	
2 setae	2	Tauròcheros.	3	3	—								—				0	—	spine
2 claw	?	Therodamas.	3	3	3	3	3	3	3	3	—								
2 claw	2	Trebius	2	2	3	3	3	3	3	3	—		—				3	—	spine
2 chela	3	Trifur	2	2	2	2	2	2	2	0	—		—				1	—	?
	~~6~~	~~Trochicola~~	1	1	1	1	1	1	1	1	—		—				3	—	spine
2 claw	2	Tuxophorus	3	0	3	3	3	3	4	0	X	—	—			X	1	—	spine
3 setae	4	Ventriculina	2	2	2	0	2	0	—				—				1	—	?
		~~Leptotrachelus~~																	
		~~Opimia~~																	
		Parapandarus																	
4 setae	7	Eurynotopsyllus	3	2	3	2	2	0	0	0	0	0					4		
chela		Pontopsyllus	2	2	2	2	2	2	2	2	0	0	0	0	0	0	3	—	forceps
5 claw	~~10~~	~~Polycliniophilus~~	Belongs in Notodelphyoida if it is a copepod (?).																
		~~Leptotrachelus~~																	

LERNAEOPODOIDA

- Achtheres •
- Antheacheres • Anthessheridae
- Aphanodomus •
- Basanistes •
- Blias •
- Brachiella •
- Bradophila •
- Brianella •
- Briarella •
- Cauloxenus •
- Charopinus •
- Chondracanthus •
- Chondrocarpus • = Caligida - Dichelesthiidae -
- Clavella •
- Clavellisa •
- Clavellodes •
- Clavellopsis •
- Colobomatus • Anthessheridae -
- ~~Crypticlomus~~ = Aphanodomus.
- Diocus •
- Epibrachiella •
- Eubrachiella •
- Hepatophilus = Rebelula
- Ismaila — Anthessheridae - Lernaeopodoida
- Juanettia •
- Lepeophilus • Anthessheridae - Lernaeopodoida
- Lernaeascus • Anthessheridae - Lernaeopodoida
- Lernaeopoda •
- Lernaeopodina •
- Lernaeopodopsis •
- Medesicaste •
- Mesoglicola • Anthessheridae
- Naobranchia •
- Nectobrachia •

- Oestrella
- Opimia •
- Paeon •
- Parabrachiella •
- Periplexis •
- Philichthys • Anthessheridae
- Polyrrhynchus • Anthessheridae
- Prebrachiella •
- Pseudochondracanthus •
- Pseudulus •
- Rebelula •
- Rhizorhina •
- Saccopsis •
- Salmincola •
- Sphaerifer • Anthessheridae
- Sphyrion •
- Splanchnotrophus Anthessheridae or Notodelphyida —
- Staurosoma • Anthessheridae
- Strabax •
- Tanypleurus •
- Thomsonella •
- Thysanote •
- Thysanotella •
- Tracheliastes - •
- Trichthacerus •
- Trypaphylum •
- Ubius ×
- Vanbenedenia •
- Xenocoeloma •
- Oralien •
- Eurysileniopsis •
- Eurysilenium •
- Flabellicola ×
- Herpyllobius •
- Trophonophila ×

Stenothocheres •
Homoeoscelis •
Spheronella •
Choniostoma •
Mysidion •
Aspidoecia •
Melinnacheres •
Jeanella •

	II		III		IIII		IIV		V ♀		V ♂		An.1		An.2		Sixth Legs	Abdomen	
	En.	Ex.	En.	Ex.	En.	Ex	En.	Ex.	En.	Ex	En.	Ex.	♀	♂	En.	Ex	♂	♀	♂
D'Arcythompsonia	2	3	2	3	2	3	2	3	0	1			7		2	2		4	
Stenhella = Delavalia	2	3	3	3	3	3	3	3	0	1			8	8	2	2		5	6
Diosaccus (Diarthrodes)	3	3	2♂ 3♀	3	3	3	3	3	0	2	0	2	8	8	2	1	x	4.5	
Macrosetella (~~Dacyphia~~)	2	3	3	3	3	3	3	3	0	1			8		2	0		5	
Echinopsyllus	1r.	3	1r.	3	1r.	3	r.	3	0	2			4		2	0		4	
Ectinosoma	3	3	3	3	3	3	3	3	0	2	0	2	5		2	3		4	
Ectinosomella	3	3	3	3	3	3	3	3	0	2			6		2	3		4	
Enhydrosoma	2	3	2	3	2	3	2	3	0	2	0:2		5:6		2	1		4	
Epactophanes	2	3	2	3	2	3	1	3	0	2	0:1		6:6		2:1			3:4.	
Eremopus	3	3	3	2	3	3	3	3	0	2			8		2	3		4	
Esola	2	1	2	3	2	3	2	3	0										
Eucanuella	3	3	3	3	3	3	3	3	0	2			7		2	4		4	
Eupelte	2	3	3	3	3	3	3	3	0	2			8		2	r.		4	
Eurycletodes	2	3	2	3	2-1	3	2-1	3	0	2	0	2	6	8	2	0		5	
Euterpina	2	2	3	3	3	3	3	3	0	1	0	1	7	5	2	1		4	
Evansula	2	3	1	3	♀1 ♂2	3	1	3	0	1	0	1	7	7	2	r.		4	
Fultonia (Flavia)	2	3	3	3	3	3	3	3	0	2			7		2	r.		5	
Godetella	2	3	2	3	♀2 ♂3	3	2	3	0	2			6	6	2	1		3	3
Halithalestris	3	3	3	3	3	3	3	3	0	2			9		2	2		4	
Halophytophilus	2	3	3	3	3	3	3	3	0	2			6		2	3		4	
Harrietella	2	3	2	3	2	3	1	3	0	2			6		2	1		4	
Harpacticella Harpacticus	3	2	3	3	3	3	3	3	0	2			8	5	2	2		4	5
Hemimesochra	2	3	2	3	2	3	2	3	0	2			5		2	1		4	
Herdmania Heteropsyllus	3	3	2	3	2	3	2	3	0	2			5		2	2		4	
Huntemannia	1	3	1	2	1r.	2	1r.	2	0	2			5		2	1		4	
Idomene	3	3	3	3	3	3	3	3	0	2	0	2	7	5	2	2		4	
Idomenella	3	3	3	3	3	3	3	3	0	1			6		2	2		4	
Idyanthe	3	3	3	3	3	3	3	3	0	2	0	2	8:9		2	2		4	
Idyella	2	3	3	3	3	3	3	3	0	2	0	2	8:9		2	2		4	
Idyopsis. synonym	3	3	3	3	3	3	3	3	0	2			8:		2	3-4:		4	
Itunella	2	3	1	3	♂2 ♀1	3	♂3 ♀1	3	0	2	0	r.	7:7		2:1			4:5	
Laophonte	2	2	2	3	♂3 ♀2	3	2	3	0	2	0	2	4	5	2	1	x	5	5
Laophontella	2	2	2	2	2	2	1	3	0	2			5		2	0		4	
Laophontodes	2	3	2	3	♂3 ♀2	3	2	3	0	2	0	2	5	6	2	0		4	
Laophontopsis	2	3	2	3	2	3	2	3	0	2			4		2	1		4	

Leimia	II	III	IIII	IIV	V ♀	V ♂	An.1	An.2	Abd.	6° Legs
	En. Ex.	En. Ex.	En. Ex.	En. Ex.	En. Ex.	En. Ex	♀ ♂	En. Ex.	♀ ♂	♂
Leptastacus	2:3	2:3	2:3	2:3	0:1		7:	2:r.	4:	—
Leptocletodes	2:3	2:3	2:3	2:3	0:2		7:	2:r.	4:	—
Leptomesochra	2:3	2:3	2:3	3:3	0:2	0:2	8:8	2:1	4:	—
Leptopontia	2:3	2:3	2:3	2:3	0:2		7:	2:0	4:	
Leptopsyllus	2:2	0:3	0:3	2:3	0:2		8:	2:1	4:	
Longipedia	3:3	3:3	3:3	3:3	0:2	0:2	5:	3:6	5:	
Lourinia	2:3	2:3	2:3	2:3	0:2	0:2	7:6	2:1		
Machairopus	2:3	3:3	3:3	3:3	0:2	0	9:	2:4	4:	
Malacopsyllus	2:3	2:3	2:3	2:3	0:2	0:2	8:8	2:r.	4:	
Maraenobiotus	2:2	2:3	2:3	2:3	0:2	0:2	8:8	3:2	4:4.	
Marshia	3:2	2:3	2:3	1:3	0:2		6:	2:0	4:	
Megarthrum	2:3	3:3	3:3	3:3	0:1		6:	2:0	5:	
Mesochra	2:3	2:3	2:3	2:3	0:2	0:2	7:	2:1	4:	
Mesocletodes	2:3	2:3	2:3	2:3	0:2		7:	2:1	4:	
Metaphroso	2:3	3:3	3:3	3:3	0:r.		8:	2:1	4:	
Metis	2:3	3:3	3:3	3:3	0:1	0:1	6:7	2:0	5:	
Microcryobius	1:1	1:1	1:1	1:1	0:1		5:	2:2	2:	
Microsetella	3:3	3:3	3:3	3:3	0:2		6:6	2:3		
Microthalestris	2:3	3:3	3:3	3:3	0:2	0:4	9:9	2:2	5:	
Miracia	2:3	2:3	3:3	3:3	0:1		9:	2:1	6:	
Misophria	3:3	3:3	3:3	3:3	0:3	0:3	16:13	3:6	5:6	
Moraria	2:3	2:3	2:3	2:3	0:2	0:2	7:7	2:1	4:	
Nannopus	2:3	2:3	2:3	1:3	0:2		5:	2:1	4:	
Neobradya	3:3	2:3	2:3	2:3	0:2	0:2	9:9	2:4	4:	—
Nitocrameira	3:3	3:3	3:3	3:3	0:2		8:7	3:1		
Nitokra	3:3	3:3	3:3	3:3	0:2	0:2	8:9	2:1	4:	
Normanella	2:3	2:3	2:3	2:3	0:2	0:2	5:5	2:1	4:	
Orthopsyllus (Onychocamptus)	2:3	2:3	2:3	2:3	0:2	0:2	4:5	2:1	4:	
Paramesochra	2:2	2:3	2:3	2:3	0:2		7:	2:1	4:	—
Parastenhelia	2:3	3:3	3:3	3:3	0:2		9:	2:3	4:	—
Parastenocaris	2:3	1:3	1:2	1:3	0:2		7	2:1	4:	
Parategastes	1:1	3:2	3:2	3:3	0:2	0:2	7:7	2:1	3:3	
Parathalestris	3:3	♂2 ♀3:3	3:3	3:3	0:2	0:2	9:9	2:2	4:5	
~~Parawestwoodia~~	~~3:2~~	~~♂2 ♀3:3~~	~~3:3~~	~~3:3~~	~~0:2~~	~~0:2~~	~~5:6~~	~~2:2~~	~~4:~~	X = Pseudothalestris
Peltidium	2:3	3:3	3:3	3:3	0:2	0:2	7:5	2:2	3:3	
Paramoraria	2:3	1:3	♂2 ♀1:3	♂3 ♀1:3	0:2	0:2	7:	2:1	4: = Itunella	
Leptocaris	2:3	2:3	2:3	2:3	0:1			2:1		
Herdmania										

Xouthous	I		II		III		IV		V ♀	V ♂	An.1		An2		Abd.		6° legs.
	En.	Ex	En	Ex	En	Ex	En	Ex	Ex	Ex	♀	♂	En	Ex	♀	♂	♂.
Zaus	3	2	3	3	3	3	3	3	2	2	9	5	2	2	4	5	0
Zosime	2	3	3	3	3	3	3	3	2		6		2	3	5		
Sarsocletodes	2	2	2	3	2	3	2	3	2		4		2	1	5		
Harpacticella																	
Harrietella																	
Leimia																	
Herdmania																	
Onychocamptus																	
Aenippe	3	3	3	3	3	3	3	3	0	0	8		2	0			
Bradyellopsis	2	3	3	3	3	3	3	3	2	2	5	5	3	1			
Phroso	3	3	3	3	3	3	3	3	2		8		3	2			
Flavia	2	3	1	3	3	3	3	3	unknown		10		unknown.				
Diarthrodes																	
Thompsonula																	
Mawsonella	3	2	2	2	2	2	2	2	2		8		2	2			2.
Cletocamptus	3	2	2	3	2	3	1	3	2	0	6	6	2	2			

Xouthous
Synatiphilus —

	II En.	II Ex.	III En.	III Ex.	IIII En.	IIII Ex.	IV En.	IV Ex.	V ♀ En.	V ♀ Ex.	V ♂ En.	V ♂ Ex.	An.[1] ♀	An.[1] ♂	An.[2] En.	An.[2] Ex.	Abd. ♀	Abd. ♂	6° Legs ♂
Perissocope	2	2	3	3	3	3	3	3	0	2			8		2	2	5		—
/5 Phyllocamptus	2	3	3	3	3	3	3	3	0	2			8		3	1	4		—
Phyllognathopus	3	3	3	3	3	3	2	3	0	2			8		2	1	4:5		x
Phyllopodopsyllus	2	3	2	3	2	3	2	3	0	1			9.8		2	2	4		
Phyllothalestris	3	3	3	3	3	3	3	3	0	2	0	2	9	9	2	2	4	5	
Platychelipus	2	2	2	3	2r.	3	1r.	3	0	2	0	r.	6	5	2	1	4	5	X
Pontopolites	2	3	1	3	1r.	3	1r	3	0	1	0	1	5	5	2	2	4		
Pontostratiotes	3	3	3	3	3	3	3	3	0	3			10		2	4	4		
Porcellidium	2	3	3	3	3	3	3	3	0	1	0	1	6	4	2	1	2	2	
Psammis	2	3	3	3	3	3	3	3	0	2			4		2	3	4		
Pseudameira	3	3	3	3	3	3	3	2	0	2	0	2	8	8	2	1	5		
Pseudobradya	3	3	3	3	3	3	3	3	0	2	0	2	5		2	2	4		
Pseudoidya	2	3	3	3	3	3	3	3	0	2			9		2	0	5 = Idyella		
Pseudolaophonte	2	2	0	1	2	2	2	3	0	2	0	2	5	6	2	1	4		—
Pseudomesochra	2	3	2	3	2	3	2	3	0	1			6		2	2	4		
Pseudotachidius	3	3	3	3	3	3	3	3	0	2			6	6	1	3	4		
Pteropsyllus	3	3	2	3	2	3	2	3	0	2	0	1	8	8	2	r.	4		
Rhizothrix	2	3	2	3	2	3	2	3	0	2			4		2	1	4		
Rhynchothalestris	3	3	3	3	3	3	3	3	0	2	0	2	9	9	2	3	4	5	X
Robertsonia	3	3	3	3	3	3	3	3	0	2	0	2	5	7	2	2	4		
Sacodiscus	3	3	3	3	3	3	3	3	0	2	0	2	9	8	2	3:	4	5	
Sarsameira	3	3	3	3	3	3	3	3	0	2			8		2	1:	4		
Scutellidium	3	3	3	3	3	3	3	3	0	2			9		2	4:	4		
Sigmatidium	2	3	3	3	3	3	3	3	0	2			4(?)		3	1/2			
Stenhelia	2/3	3	♂2 ♀3	3	3	3	3	3	0	2	0	2	8	7	2	3	5		X
Stenheliopsis	2	3	3₂	3	3₂	3	3₂	3	0	1			6		2	2	4		
Stenocaris	2	3	♀♂ 1-2	3	♀♂ 1-2	3	2	3	0	1	0	1	6		2	1	4		x
Stenocopia	3	3	3	3	3	3	3	3	0	2	0	2	8	9	2	2:	4		x
Sunaristes	3	3	3	3	3	3	3	3	0	r.			6		3	6:	4		
Tachidiella	3	3	3	3	3	3	3	3	0	2			8		2	2:	4		
Tachidiopsis	3	3	2	3	2	3	3	3	0	2			9		2	4:	4		—
Tachidius	3	3	3	3	3	3	3	3	0	1			6-7	7	2	2	4		x
Tegastes	1	1	3	3	3	3	3	3	0	2	0	2	8	8	2	2:	3	3	
Tetanopsis	3	3	3	3	3	3	3	3	0	1			5		2	1:	5		—
Tetragoniceps	2	3	2	3	2	3	2	3	0	2	0	2	9	7	2	1:	4	5	X
Thalestris	3	3	♂2 ♀3	3	3	3	3	3	0	2	0	2	9	8	1	2:	4	5	x
Tigriopus	3	3	3	3	3	3	3	3	0	2	0	1	9	6	2	4:	4	5	x
Tisbe	3	3	3	3	3	3	3	3	0	2	0	2	8	8	2	4:	5	5	x

HARPACTICOIDA

	I Ex.	I Ex.	III En.	III Ex.	IIII En.	IIII Ex.	IV En.	IV Ex.	V ♀ En.	V ♀ Ex.	V ♂ En.	V ♂ Ex.	An[1] ♀	An[1] ♂	An[2] En.	An[2] Ex.	6° Legs ♂	Abdomen ♀	Abdomen ♂
Abacola	2	3	♂2 ♀3	3	3	3	♂3 ♀3	3	r.	r.	r.	r.	2-ex. 3-en.		3			5	
Aegisthus	3	3	3	3	3	3	3	3	0	1	0	2	6		3	1			
Alteutha	3	3	3	3	3	3	3	3	0	2	0	2	8-9		3	2		4	5
Ameira	3	3	3	3	3	3	3	3	0	2	0	2	8	8	2	1		5	5
Ameiropsis	3	3	3	3	3	3	3	3	0	2	0	2	8	8	2	2		5	5
Amenophia	3	3	3	3	3	3	3	3	0	2	0	2	9	9	2	2		5	5
Amphiascus	3	3	3	3	3	3	3	3	0	2	0	2	8	8	2	3		6	6
Ancorabolus	2	2	2	3	2	3	2	3	1	1	0	2	3	5	2	0		4	
Anopherura.																			
Anoplosoma	1	1	1	2	1	2	1	2	0	2	0	2	5	5	2	0		5	
Argestes	3	3	3	3	3	3	3	3	0	2			7	'	2	1r.		5	
Arthropsyllus	2	2	2	3	2	3	2	3	0	2	0	2	3	6	2	0		4	
Asellopsis	2	2	2	3	♂3 ♀2	3	2	3	0	2	0	2	5	6	2	1		4	
Attheyella	2/3	3	2	3	♂3 ♀2	3	2	3	0	2	0	2	8		2	1		4	
Balaenophilus	3	3	2	3	1	3	1	3	0	2	0	2	9	9	2	1		4	5
Benthomisophria	3	3	3	3	3	3	3	3	0	2			17						
Bradya	3	3	3	3	3	3	3	3	0	1-2			6-7		2	3		5	
Campella																			
Cancrincola	2	3	3	3	3	3	3	3	0	2	0	2	8	8	2	1	—	4:5	
Canthocamptus	3	3	3	3	3	3	2/3	3	0	2	0	2	8	6	2	2	X	4	
Canuella	3	3	3	3	3	3	3	3	0	r	0	r	5	5	3	7		5	5
Ceratonotus	2	2	1r.	3	1r.	3	1r.	3	0	2			4		2	0		4	
Cervinia	3	3	2-3	3	2-3	3	2-3	3	0	2	0	2	7	6	3	4		4	
Cerviniopsis	3	3	3	3	3	3	3	3	0	2			6		2	4		4	
Ceyloniella	2	3	2	3	2	3	2	3	0	2	0	2	7	7	1	2	—	4:	
Cholidya	3	3	2	2	0	0	0	0	0	1			6		1	2	—	3:	
Cletodes	2	3	2	3	2	3	2	3	0	2	0	2	5	6	2	0		4	
Cletomesochra	3	3	2	3	2	3	2	3	0	2			5		2	2		4	
Clytemnestra	3	1	3	3	3	3	3	3	0	2			8		2	r.		4	
Cylindropsyllus	2	3	2	3	2	3	2	3	0	1	0	1	7	8	2	r.		4	
Dactylopina	2	3	3	3	3	3	3	3	?	?			8		2	2		4	
Dactylopodella	2	3	2♂ 3♀	3	3	3	3	3	0	2	0	2	6	5	2	2		4	
Dactylopodopsis	2	3	3	3	3	3	3	3	0	2			5		2	3		4	
Dactylopusia	3	3	2♂ 3♀	3	3	3	3	3	0	2	0	2	8-9	8-9	2	3		4	
Danielssenia	2	3	3	3	3	3	3	3	0	2	0	2	4	6	2	3		4	
Meropia																			
Pseudocletodes	0:3		2:3		2:3		2:3		0:2		0:2		6:6		2:1			4:	
Pseudodiosaccus																			

	I En.	I Ex	II En	II Ex	III En	III Ex	IV En	IV Ex	V ♀ En	V ♀ Ex	V ♂ En	V ♂ Ex	Ant⁷ ♀	Ant⁷ ♂	Ant² En	Ant² Ex	Urosome ♀	Urosome ♂
Acartia	2	3	2	3	2	3	2	3	0	3	0	4	17-18	12-14	2	3	4	5
Acartiella	2	3	2	3	2	3	2	3	1	1	r-1-2 l-0—3		21	r-18 l-21	2	3	3	5
Acrocalanus	2	3	3	3	3	3	3	3	0	0	r-0-0 l-0-5		25	19	2	7	4	5
Adiaptomus	2	3	3	3	3	3	3	3	1	2	r-3-2 l-0—1		26	r-23 l-26	2	7	2	3
Aetideopsis	1	3	1 2	3	3	3	3	3	0	0	—		23	—	2	7	4	—
Aetideus	1	3	1	3	3	3	3	3	0	0	r.0—0 l.0—5		23	20	2	7	4	5
Amallophora	1	3	2	3	3	3	3	3	0	2-3	0	3	23	20	2	6	4	4
Anomalocera	3	3	2	3	2	3	2	3	1	2	0	3	21	21	3	5	4	5
Arietellus.	3	3	3	3	3	3	3	3	0	1	1	3	20	19			4	
Augaptilina	2	3	3	3	3	3	3	3	3	3	unk		25	unk			3	unk
Augaptilus	3	3	3	3	3	3	3	3	2 3	2 3	3	3	25	25	2	8	3	5
Bathycalanus	3	2 3	3	3	3	3	3	3	3	3	3	3	25	25	2	7	4	5
Bathypontia	2	3	3	3	3	3	3	3	0	3	r-0 4 l-0 5			25			4	
Boeckella	3	3	3	3	3	3	3	3	3	3	1	3	25	r.23 l.25	2	5	3	
Boeckellina	3	3	3	3	3	3	3	3	3	3	r.2 l.1	2	25		2	5	3	3
Boeckellopsis	3	3	3	3	3	3	3	3	3	3	r. l.1	2	25		2	5	3	
Brachycalanus	1	3	2	3	3	3	3	3	0	3	1	2	25		2	6		5
Bradycalanus	3	3	3	3	3	3	3	3	3	3			25		2	7	4	
Bradyetes	1	3	2	3	3	3	3	3	0	0	0	5	24	25	2	7	4	
Bradyidius	1	3	2	3	3	3	3	3			0	5	24	25			4	
Brunella	1	2	2	3	2	3	2	3	2	3	r-2-2 l-3-3		27	27	2	5	4	5
Calamoecia	2	3	2	3	2	3	2	3	2	3	r-2-3 l-2-1		24	15	2	6	4	5
Calanoides	3	3	3	3	3	3	3	3	3	3	r-3-3 l-1-3		24	24	2	6	4	5
Calanopia	2	3	2	3	2	3	2	3	0	3 4	0	4	17				2	5
Calanus	3	3	3	3	3	3	3	3	3	3	3	3	25	20	2	7	4	
Calocalanus	2	3	3	3	3	3	3	3	0	3 4	0	r-4 l-5	25	25	2	7	2 3	5
Canthocalanus	3	3	3	3	3	3	3	3	3	3	3	3	25	25	2	7	4	5
Candacia	2	3	2	3	2	3	2	3	0	3	0	r.3 l.4	23				3	
Centraugaptilus	3	3	3	3	3	3	3	3	3	3	—		24	—	2	7	3	—
Centropages	3²	3	3²	3	3²	3	3²	3	3	3	3	r.3 l.2	29	21 22	2	6	3	4
Cephalophanes.	1	3	2	3	3	3	3	3	0	3			24		2	6	4	
Chiridiella.	1	1	1	3	3	3	3	3	0	0			24					
Chiridius.	1	3	1 2	3	3	3	3	3	0	0	0	5	23	23	2	7	4	
Chirundina.	1	2-♀ 3-♂	1♀ 2♂	3	3	3	3	3	0	0	1	r.2 l.3		24	2	7	3 4	5
Clausocalanus.	1	3	2	3	3	3	3	3	0	3	0	r.1-3 l.5	23	20	2	6	4	

	I En	I Ex	II En	II Ex	III En	III Ex	IV En	IV Ex	♀ V En	♀ V Ex	♂ V En	♂ V Ex	Ant¹ ♀	Ant¹ ♂	Ant² En	Ant² Ex	Urosome ♀	Urosome ♂
Comantenna	1	3	2	3	3	3	3	3	0	0			24		2	6	4	
Cornucalanus	1	3	2	3	3	3	3	3	0	3	0	r.3 l.5	24	24			3	4.
Ctenocalanus	1	3	2	3	3	3	3	3	0	4	0	r.7 l.5	25		2	6	4	
Diaixis	1	3	2	3	3	3	3	3	0	0	0	r. 2-3 l.4	24		2	6	4	
Diaptomus	2	3	3	3	3	3	3	3	1	3	2	2	25	25	2	7	2/3	5
Disseta	3	3	3	3	3	3	3	3	3	3	3	3	25	21			4	5
Drepanopsis	1	3	2	3	3	3	3	3	0	3	unk		24	unk	2	7	4	unk
Drepanopus	1	3	2	3	3	3	3	3	0	2	rud	r.1-3 l.2	24	21		6	3	4
Epilabidocera	3	3	2	3	2	3	2	3	1	1	0	3	25		2	4	3	4
Epischura	1	3	1	3	1	3	1	3	0	3	0	r-2 l-3	25	25			2/3	5
Euaugaptilus	3	3	3	3	3	3	3	3	3	3	3	3	25	25	2	8	3	5
Eucalanus	2	3	3	3	3	3	3	3	0	0	0	r-0 l-4	23				3/4	5
Euchaeta	1	2	1	3	3	3	3	3	0	0	1	r-2 l-3	23				3	4
Euchaetopsis	1	1	1	1	1	1	1	2	0	0	unk		11	unk	5	4	2	unk.
Euchirella	1	2	1/2	3	3	3	3	3	0	0	1-0	2-3	23	21	2	7	4	5
Eurytemora	1	3	2	3	2	3	2	3	0	4	0	r-4.5 l-3-4	24	21	2	7	4	
Farrania	1	3	2	3	3	3	3	3	0	3	unk		24	unk	2	6	4	
Gaetanus	1	2/3	1/2	3	3	3	3	3	0	0	1,	r-2 l-3	24	22			4	5
Gaidiopsis	1	3	2	3	3	3	3	3	0	0			24		2	7	3	
Gaidius	1	2	1	3	3	3	3	3	0	0	r.1-2 l.1-3		23	20	2	7	4	
Gladioferens	3	3	3	3	3	3	3	3	3	3	3	3	25	r-17 l-25	2	6	4	5
Guernella	3	3	3	3	2	2	1	2	1	1			25		4	6		
Haloptilus	3	3	3	3	3	3	3	3	3	3	3	3	25		3	7	4	5
Hemidiaptomus	2	3	3	3	3	3	3	3	2	3	1	2	25				3	
Heteramalla	1	2	2	3	2	3	3	3	0	3			24				3	
Heterocope	1	3	1	3	1	3	1	3	0	4	r. 0-4 l. 1-2		25		2	6		
Heteroptilus	3	3	3	3	3	3	3	3	1	3	3	3	25	—	2	8	4	—
Heterorhabdus	3	3	3	3	3	3	3	3	3	3	3	3	25	21	2	7	3	4
Heterostylites	3	3	3	3	3	3	3	3	3	3	3	3	25		2	7	4	
Hypoacartia	2	3	2	3	2	3	2	3	0	3	r-0-5 l-3		17	—	2	3	3	—
Isias	3	3	3	3	3	3	3	3	1	3	r-1 l-rud.	2			2	5	3	3
Isocalanus	1	3	2	3	3	3	3	3	0	3	unk		22 23	unk	2	7	4	unk
Isochaeta	3	3	3	3	3	3	3	3	2									
Isocope	3	3	3	3	3	3	3	3			0	r-5 l-2	24	24	2	3	4	
Ivellopsis	3	3	2	3	2	3	2	3	1	1	0	2	22	18			2	4

	I En	I Ex	II En	II Ex	III En	III Ex	IV En	IV Ex	♀ V En	♀ V Ex	♂ V En	♂ V Ex	Ant¹ En	Ant¹ Ex	Ant² En	Ant² Ex	♂	Urosome ♀
Labidocera	2	3	2	3	2	3	2	3	1	1	r-0 l-1	5 2	23	19	2	6	5	2/3
Lamellipodia	1	3	1	3	1	3	1	3	0	3	0	r-3 l-1						
Limnocalanus	3	3	3	3	3	3	3	3	3	3	3	2	25	13	2	7	4	3
Lophothrix	1	3	2	3	3	3	3	3	0	3	1	r-2-3 l-3-3	19 24	17 24	4	6	4	3
Lucicutia	2	3	3	3	3	3	3	3	3	3	r-3 l-2	3 2	25	22	2	8	5	4
Macandrewella	1	3	2	3	3	3	3	3	0	1	1	2	23	23	2	6		3
Macrocalanus	3	3	3	3	3	3	3	3	3	3	3	3	25	—	2	7	5	4
Macrorhabdus	3	3	3	3	3	3	3	3	3	3		—	25	—	2	7	4	3
Mecynocera	1	3	3	3	3	3	3	3	0	5	0	5	24	24	2	7	4	3
Megacalanus	3	3	3	3	3	3	3	3	3	3	3	3	25		2	7	5	4
Mesogaidius	1	3	2	3	3	3	3	3	0	0	unk		24	unk	2	7	unk	4
Mesorhabdus	3	3	3	3	3	3	3	3	3	3	unk		25					3
Mesundeuchaeta	1	2	1	3	3	3	3	3	0	0	unk		23	unk	2	7	unk	4
Metacalanus	3	3	3	3	3	3	3	3	0	1	0	3	17 18	2-15				4
Metadiaptomus	2	3	3	3	3	3	3	3	1	2	r-2-3 l-0-2		26	r-23 l-26	2	8	5	3
Metranura	3	3	3	3	3	3	3	3	3	3			r-25 l-14					4
Metridia	3	3	3	3	3	3	3	3	0	4♂	0	4♂	24		2	6	4	3
Microcalanus	1	3	2	3	3	3	3	3	0	0	0	r-3 l-6	24	21	2	6	5	4
Mimocalanus	1	3	2	3	3	3	3	3	0	2	3	3	25	25			5	4
Monacilla	1	3	2	3	3	3	3	3	0	rud.	1	2	24		4	7	5	4
Mormonilla	2	2	2	2	1	2	1	2	0	0			3		2	8		3
Neopontella	3	3	2	3	2	3	2	3	0	3	0	3	18		3	7	4	3
Neoscolecithrix	1	3	2	3	3	3	3	3	0	3					2	6	3	
Onchocalanus	1	3	2	3	3	3	3	3	0	3	r-0-3 l-0-5		24	17	4	6	5	4
Oithrix	1	3	2	3	3	3	3	3	0	3	—		24	—	2	6	—	4
Osphranticum	3	3	3	3	3	3	3	3	3	3	3	r-2 l-3	24	24	2	7	5	4
Oxycalanus	1	3	2	3	3	3	3	3	0	0	unk		24	unk	2	7	unk	3
Pachyptilus	3	3	3	3	3	3	3	3	1	3	—		25	—	2	7	—	4
Paraboeckella	3	3	3	3	3	3	3	3	3	3	r-3 l-1	3 2	25		2	5	5	3
Parabroteas	3	3	3	3	3	3	3	3	3	3	3	r-3 l-2	25	25			4	3
Paracalanus	2	3	3	3	3	3	3	3	0	2	0	r-2 l-5	25	20	2	7		4
Paracartia	2	3	2	3	2	3	2	3	0	2	0	r-4 l-3	14	17	2	4	4	3
Paradiaptomus	2	3	3	3	3	3	3	3	2	3	2	r-3 l-2						2
Paraeuchaeta	1	3	1	3	3	3	3	3	0	0			23					
Paralabidocera	2/3	3	2	3	2	3	2	3	1	1	0	r-4 l-3	24	21	2	4	5	3

	I En	I Ex	II En	II Ex	III En	III Ex	IV En	IV Ex	V ♀ En	V ♀ Ex	V ♂ En	V ♂ Ex	Aut¹ ♀	Aut¹ ♂	Aut² En	Aut² Ex	Urosome ♀	Urosome ♂
Paramisophria	3	3	3	3	3	3	3	3	0	2	0	4	21	21	2	6	4	5
Parapontella	3	3	2	3	2	3	2	3	1	1	3	3	20	17	2	5	3	5
Parastephos	1	3	2	♂2 ♀3	3	3	3	3	0	3	0	r-5 r-4	23		2	6	3	4
Paravaraptilus	3	3	3	3	3	3	3	3	0	1 2	2	2	20		2	3	3	
Phaënna	1	3	2	3	3	3	3	3	0	0	0	r-4 l-5	24	r-18 l-19	2	6	4	5
Phyllopus	3	3	3	3	3	3	3	3	0	3 5	0	3 5	24	20			4	5
Piezocalanus	2	3	3	3	3	3	3	3			0	r-2 l-6	25	25	2	2		5
Plagiopus	1	2	1	2	1	2	1	2	0	2			21				2	
Platycopia	2	2	3	3	3	3	3	3	3	3	3 2	3 2	23	16	2	5	4	4
Pleuromamma	3	3	3	3	3	3	3	3	0	3	0	4	23	21	2	7	3	3
Pontella	3	3	2	3	2	3	2	3	1	1	0	4	24		2	4	2 3	4
Pontellina	3	3	2	3	2	3	2	3	1	1	0	4	17 19	15	2	4	3	5
Pontellopsis	3	3	2	3	2	3	2	3	1	1	0	r-3 l-2	16	16	2	4	1 2	1 2
Pontoptilus	3	3	3	3	3	3	3	3	2 3	2 3	3	3	24	22	3	8	4	5
Poppella	3	3	3	3	3	3	3	3	0	3	1	2	25		2	5		
~~Chiridius=Pseudaetideus~~	~~1~~	~~3~~	~~2~~	~~3~~	~~3~~	~~3~~	~~3~~	~~3~~	~~0~~	~~0~~	~~rud.~~	~~3~~	~~23~~			~~7~~		
Pseudaugaptilus																		
Pseudeuchaeta	1	3	2	3	3	3	3	3	0	0			24		4	7	4	
Pseudhaloptilus	3	3	3	3	3	3	3	3	1	3	unk		25	unk	3	8	4	unk
Pseudoboeckella	3	3	3	3	3	3	3	3	3	3	r-3-2 l-1-2		25					
Pseudochirella	1	3	1	3	3	3	3	3	0	0	—		23	—	2	7	4	—
Pseudocalanus	1	3	2	3	3	3	3	3	0	0	0	r-4 l-5	24	19	2	7	4	5
Pseudocyclopia	1	3	2	3	3	3	3	3	0	3	0	r-3-4 l-4-5	20		2	6	4	5
Pseudocyclops	3	3	3	3	3	3	3	3	3	3	1	2	18	18	2	3	3	4
Pseudodiaptomus	3	3	3	3	3	3	3	3	0	2 3	rud.	2	20	22	2	2 4	3 4	5
Pseudoöthrix	1	2	2	2	2	2	2	2	1	1			24		3	5	3	
Pseudophaënna	1	3	2	3	3	3	3	3	0	3	0	r-5 l-6	23	21	2	6	4	5
Pseudotharybis	1	3	2	3	3	3	3	3	0	3			24		2	7	4	
Racovitzanus	1	3	2	3	3	3	3	3	0	2			22		2	6	3	
Rhapidophorus	3	3	3	3	3	3	3	3	1	2			22		2	6		
Rhincalanus	2	2	3	3	3	3	3	3	0	3	r-0-1 l-2-1		23		2	8	4	
Ridgewayia	3	3	3	3	3	3	3	3	2	3			25		2	8	4	
Scaphocalanus	1	3	2	3	3	3	3	3	0	3 2	r-2-3 l-2-3		23		2	6	3	4
Scolecithricella	1	3	2	3	3	3	3	3	0	1-3	0	r-4 l-2	22	18	2	6	4	5
Scolecithrix	1	3	2	3	3	3	3	3	0	0	r-0-3 l-1-3		19 24	17 24	2	5	4	5

	I En	I Ex	II En	II Ex	III En	III Ex	IV En	IV Ex	V ♀ En	V ♀ Ex	V ♂ En	V ♂ Ex	Aut¹ ♀	Aut¹ ♂	Aut² En	Aut² Ex.	Urosome ♀	Urosome ♂
Scottocalanus	1	3	2	3	3	3	3	3	0	3	r-1-2 l-1-2		r-19 l-20	r-19 l-20			3	
Scottula	3	3	3	3	3	3	3	3	0	3	0	4			2	5	4	5
Senecella	1	3	2	3	3	3	3	3	0	0	1	2	25	25	2	7	4	
Sinocalanus	3	3	3	3	3	3	3	3	3	3	3	2	25	25	2	8	3	4
Spinocalanus	1	3	2	3	3	3	3	3	0	0			23		2	7	4	
Stephos	1	3	2	3	3	3	3	3	0	3	0	r-4 l-5	24		2	6	4	5
Streptocalanus	1	3	2	3	3	3	3	3	unk		0	r-5 l-2	23	23	3	5		4
Talacalanus	1	3	2	3	3	3	3	3	0	3			24		2	6	3	4
Temora	2	3	2	3	2	3	2	3	0	3	0	r-4 l-3	24	24	2	7	3	5
Temorites	2	3	3	3	3	3	3	3	0	3	0	r-3 l-4	24	24	2	7	3	5
Temoropia	2	3	3	3	3	3	3	3	0	3	0	r-2 l-3	22 23		2	7	4	5
Temoropsis	1	3	3	3	3	3	3	3	unk		0	r. 4 l. 5	unk		2	6	unk	5
Tharybis	1	3	2	3	3	3	3	3	0	3	r-0-3 l-1-3		24		2	6	3	4
Tortanus	2	3	2	3	2	3	2	3	0	2 3	0	4	17 18	12 14			2 3	4
Undeuchaeta	1	2	1	3	3	3	3	3	1-2	0 3	r-2-3 l-0-3		23	21	2	7	4	5
Undinella	1	3	1	3	2	3	2	3	0	3	r-0-3 l-1-3		24	23			3	4
Undinula	3	3	3	3	3	3	3	3	3	3	r-3-3 l-0-3		25	25	2	7	4	
Undinopsis	1	3	2	3	3	3	3	3	0	0	0	r-3 l-5	24		2	7	4	4
Valdiviella	1	2	1	2	2	3	2	3	0	0	1	r-2 l-3	23		2	7	4	
Xanthocalanus.	1	3	2	3	3	3	3	3	0	3	0	r-3 l-6	24		2	6	3	4
Diarthropus.	2	2	2	2	2	2	2	2	0	0	1	1	24	24			2	3
Macrocalanus=Heterocalanus.	3	3	3	3	3	3	3	3	3	3			25		3	8	4	5
Hypsicalanus.	1	3	2	3	3	3	3	3	0	0	unk		23	unk	2	7	4	unk
Gaussia.	3	3	3	3	3	3	3	3	0	4	0	3	23	20	2	7	4	5
Alloiorhabdus.	3	3	3	3	3	3	3	3	3	3	unk		26	unk	2	7	4	unk
Hemirhabdus.	3	3	3	3	3	3	3	3	3	3	3	3	25	21	3	8	4	3
Autanepsius.	1	3	2	3	3	3	3	3	0	0	unk		24	unk	2	7	4	unk
Metaboeckella	2	3	3	3	3	3	3	3	2	3			25				3	
Paroella	1 2	3	1 2	3	3	3	3	3	0	0			24				4	
Suezia	3	3	3	3	3	3	3	3	1	2	1	2	22	22	3	7	4	
Pseudolovenula	2 1	2 1	2 1	2 1	2 1	2 1	2 1	2 1	1	1	unk		24		3	8	3	
Neocalanus																		
Nannocalanus																		
Siatella																		
Hemiboeckella																		
Amallothrix																		

288 316 320 268 322 420

364 230 240 518 316 224

214 96 96 96 98 121 128

108 192 128 128 580 212

136 392 108 108 152 176

128 96 116 144 224 224

260 100 192 128 96 144

112 128 160 144 96 96 96

96 64 96 128 96 112 64 64

64 160 128 176 144 224

176 256 96 128 96 176 96

176 96 96 224 144 96 156

224 160 368 208 608 428

124 655 848 672 320 380

188 62 320 144 606 128

96 112 112 96 160 144 160

192 80 128 96 64 160 128

128 96 112 112 176 142

128 160 288 208 176 144

144 112

Station	Species Total	Volume Total	Percent 1 Depth	Percent 2 Depths	Percent 3 Depths	Station	Species Total	Volume Total	Percent 1 Depth	Percent 2 Depths	Percent 3 Depths
35	96	288	14	14	18	76	19	68	8	0	6
36	73	316	14	9	15	77	27	144	27	0	0
37	88	320	20	6	18	78	41	112	13	0	15
38	86	268	5	10	31	79	35	128	0	18	3
39	85	322	6	11	28	80	54	160	11	23	8
40	90	420	19	9	12	81	47	144	8	24	8
41	74	364	17	10	20	82	52	96	4	32	8
42	74	230	6	20	17	83	31	96	4	20	8
43	71	290	6	18	11	84	37	96	6	25	8
44	90	518	14	22	16	85	35	96	4	27	8
45	68	316	7	8	18	86	35	66	1	30	8
46	57	224	4	5	13	87	33	96	2	25	8
47	53	214	11	15	6	88	33	128	9	36	8
48	54	96	5	3	25	89	49	98	8	26	8
49	62	96	4	3	23	90	45	112	11	20	8
50	66	96	7	13	25	91	50	64	17	23	8
51	50	98	8	0	31	92	27	64	5	17	8
52	52	121	4	4	25	93	56	64	7	37	8
53	66	128	4	11	28	94	64	160	4	13	19
54	80	108	4	10	35	95	74	128	8	20	21
55	82	192	4	8	34	96	68	176	5	12	22
56	108	128	4	10	34	97	74	148	10	15	11
57	80	128	1	12	31	98	72	224	11	17	9
58	36	580	0	9	12	99	52	176	5	7	13
59	24	212	0	2	5	100	50	256	3	8	12
60	12	136	1	1	2	101	40	98	0	4	15
61	26	392	0	6	11	102	45	128	2	12	10
62	36	108	1	9	4	103	50	104	3	8	11
63	34	108	1	11	1	104	58	176	10	11	11
64	31	152	1	1	14	105	54	100	5	11	17
65	42	176	4	6	17	106	67	176	9	9	17
66	45	128	4		26	107	60	96	3	12	18
67	45	96	5	3	17	108	57	96	4	8	19
68	32	116	4	3	15	109	90	224	7	22	24
69	54	144	8	10	16	110	54	144	8	12	13
70	42	224	4	5	17	111	37	64	8	12	13
71	40	224	4	5	10	112	83	256	14	21	7
72	33	260	3	16	1	113	92	224	10	21	24
73	38	100	4	3	13	114	66	160	6	14	24
74	52	192	10	9	13	115	36	368	5	6	8
75	56	128	7	9	15	116	34	208	2	13	8
76	74	230	60	30	10						
77	74	364	62	22	16						
78	90	420	44	32	24						
79	85	322	53	31	16						
80	88	268	53	34	13						
81	88	320	50	30	20						
82	65	316	50	28	22						
83	36	288	47	33	20						

151	72	176	8	13	10	
152	82	142	9	16	29	
153	66	128	10	3	24	
154	64	160	6	9	22	
155	74	288	12	9	12	
156	78	208	8	9	22	
157	76	176	7	11	13	
158	54	144	5	12	11	
159	76	144	9	14	12	
160	75	112	8	6	24	

Singl	alle						
46	19	47	20	70	30	80	11
38	16	52	22	70	30	43	11
44	15	50	20	75	25	66	12
46	11	53	13	84	16	63	2
45	14	53	16	90	10	55	18
40	12	44	24	70	10	60	8
47	12	63	16	89	11	51	20
43	7	60	10	85	15	46	23
36	14	50	20	70	30	45	19
52	13	58	14	70	30	52	22
34	11	60	16	80	40	80	20
22	11	40	18	81	20	62	15
32	7	60	13	80	20	60	15
33	5	60	10	56	5	70	10
30	6	50	37	55	45	47	16
45	5	66	8	56	16	64	15
34	5	70	16	49	20	60	11
39	1	78	5	50	22	50	20
33	5	62	10	47	20	54	10
43	2	65	8	46	30	43	16
49	9	61	11	47	22	66	6
46	10	56	12	54	30	56	13
45	15	44	14	44	10	58	14
44	2	55	8	55	18	43	22
21	2	60	7	60	16	50	11
11	4	46	16	52	18	44	19
17	2	65	10	55	15	52	14
14	22	40	14	54	6	47	13
14	5	64	36	60	8	60	11
13	6	40	20	60	11		
16	23	32	45	50	20		
26	9	51	21	60	13		
16	7	64	20	67	8		
29	15	66	33	63	17		
20	20	55	14	70	3		
27	8	70	12	75	6		
30	15	63	20	54	0		
25	6	62	20	56	12		
22	9	47	35	47	15		
34	10	61	13	44	5		
26	1	52	10	45	10		
19	14	61	16	40	12		
20	4	55	6	25	11		
20	3	70	30	40	20		
32	5	40	25	47	9		
31	3	60	9	64	21		
14	5	63	37	57	43		

Lepeophtheirus parviventris – Head + fins, [illegible]cephalus –			39533 –	5 ♀	
" "	"	"	39584 –	3 ♀	
" sp – unnumbered –					

March 13 – 1912

Lernaea branchialis	~~in situ~~ Gills of Cod –	Woods Hole –	12910 ✓ –	4 ♀	
Lernaea branchialis –	Gills of Rock Cod –	Harpswell, Me –	42297 ✓ –	3 ♀	
" "	" " Codfish	Casco Bay, Me –	12912 ✓	2 ♀	
" "	" " "	Disco Bay – Greenland –	6211 ✓	2 ♀	H.H. Brvsel
" "	" " "	Harpswell, Me –	8488 ✓	1 ♀	
" "	" " "	Casco Bay, Me –	42329 ✓	3 ♀ + 2 ♀	
" "	no label	Omaha Exposition	42300 ✓	2 ♀	
	Cod's gills	Georges Banks	6145 ✓	1 broken ♀	
" "	" in situ on Cod's gills	Browns Bank	12911 ✓	2 ♀	
Pennella costai	Sword fish	Wood's Hole –	42307	7 ♀	
" "	unknown – much infested with goose barnacles –		42298	12 ♀	
" "	Swordfish –	" (no "locality given") –	6144.	2 ♀	with barnacles
" orthagorisci	" "	Trawl line, Albatross	6159 –	1 ♀	
" crassicornis	Xiphias gladius	Barnegat, N. J. –	{6213 / 13948} –	5 ♀	with barnacles –
" costai (barnacles)	Sword fish	no locality given	42313	10 ♀	S.H. Martin
" orthagorisci –	no host given	Coast of Maine –	14574	1 ♀	
" "	Sword fish	Sti. Lookout –	3691	2 ♀	
" "	Mola rotunda	Woods Hole –	42299	10 ♀	with barnacles

Lernaea branchialis	Cod gills	Casco Bay – 1873	no number.		Verrill
Lernaeenicus radiatus	no host	no locality	35252		"
" "	Tom Cod	Vineyard Sound	38025		"
Pennella ~~fistae~~ filosa	Sword fish	" "	no number	1 ♀	"
Sphyrion lumpi	Hake salted	U.S.F.C. Grampus	42342	1 ♀, in situ	
~~Botryodes irritans~~ ~~n. gen. n. sp.~~ Rebelula bouvieri	Macrurus bairdii	(Albatross Sta. 2429)	42340	2 ♀	
" "	" "	Albatross 1884 Sta. 2180	42344	1 ♀	
" "	" "	Albatross 2546	45731	1 ♀	
Lernaea branchialis	Cod's gills	Pond of Milk, Cape Ann	no number	1 ♀.	Verrill.

Lernaeenicus radiatus	Tom Cod	Woods Hole	12298	6 ♀,
" "	" "	" "	12300	6 ♀
" "	Menhaden	" "	6002	6 ♀
" "	Engraulis vittatus	N. York Market	42349	1 ♀
" longiventris	Bluefish	Long Island Sound	6190	1 ♀
" "	Horse-fish	Woods Hole, Mass	no number	1 ♀ no good
" "	Cyprinodon maculatum	Woods Hole "	6192	1 ♀ " "
" radiatus	Tomcod	Woods Hole	42338	2 ♀.
" "	Tomcod	" "	8283	2 ♀
" "	Eel	" "	12293	2 ♀
" longiventris	Caranx	Vineyard Sound	6194	2 ♀
	Nothing in this bottle so far as I can find		6057	
" radiatus	Tomcod	Woods Hole	8285	3 ♀
" "	Alewife	" "	13069	1 ♀
" "	White Perch	" "	8288	1 ♀
		" "	8286	1 ♀
" "	" "		12304	1 ♀
" "	Hake	" "		
Clavella uncinata	Gadus morrhua	Cav. Ledge (in situ on gills)	8347	20 ♀
Lernaeenicus radiatus	Fundulus heteroclitus	Woods Hole	42335	2 ♀ whole fish with parasites in situ
			38656	100 ♀ in situ
Ergasilus labracis	Striped Bass	" "	38655	100 ♀ "
" "	" "	" "	38657	40 ♀ "
" "	" "	Washington, D.C.		

Dichelestium sturionis –	Sturgeon –	~~Cornwall, England.~~	~~8185~~	~~Kept 5 ♀~~
" "	"	Woods Hole	12683	1♀ 2♂
" "	"	" "	12682	2 ♀
" "	"	" "	11616	1 ♀
— —	—	— —	6189	1♂
— —	—	England	8186	3 ♀
— —	—	Noank, L. I. Sound	6175	1♀ 1♂
— —	—	Vineyard Sound –	~~8187~~ 11615	~~1♂~~ 6 ♀
— —	—	Noank, L. I. Sound	6174	8 ♀
— —	—	Woods Hole	12681	6♀ 2♂.
~~Nemesis atlantica –~~	~~Gills of Scoliodon terrae-novae –~~	~~Beaufort, N.C.~~	~~32814~~ Type	~~20♀ 5♂.~~
Achtheinus dentatus —	Notorhynchus maculatus –	California	42274	1 ♀
Lernaeopoda inermis – n. sp. Type –	Leucichthys harengus,	Duluth, Mich.	42283	1 ♀
" " " " Cotype	"	" Marquette, L. Superior	42285	1 ♀
" " " "	"	" Blind River L. Huron	42284	1 ♀
~~" " " "~~	~~"~~	~~" Saginaw Bay, L. Huron~~	~~42278~~	~~1 ♀~~
Anthosoma crassum	Sand Shark gills –	Woods Hole —	6039	1 ♀
" "	Lamna cornubica	no locality given –	8108	1 ♀
Lernanthropus pomatomi	Bluefish gills –	Vineyard Sound –	12684	8♀ 1♂
" "	" "	" "	~~42230~~ 6050	20 ♀.
" "	" "	" "	6156	25 ♀.
" "	" "	" "	6026	30 ♀
" "	" "	" "	6056	15 ♀
" "	" "	" "	6057	2 ♂

Chondracanthus galeritus, Rath. Pleuronectes dentatus - Woods Hole - 6077 ✓ 3 ♀
" ~~Ophycidis~~ - No host. Martha's Vineyard ~~Money Point, Inglow~~ 6066 ✓ ~~8766~~ 3 ♀
" galeritus Chaenopsetta occilaris Vineyard Sound - 6036 ✓ 5 ♀
" " Pleuronectes dentatus - " " 6082 ✓ 5 ♀
" " Chaenopsetta occilaris " " — 6037 ✓ 1 ♀
" Cottunculi Cottunculus - Albatross 8454 ✓ 1 ♀
" " " " 6166 ✓ 2 ♀

Lepeophtheirus parviventris - Pleurogrammus micropterygerus - Medni Island - 42347 - 4 ♀,
Artotrogus dubenii - Bolocera tuediae - off Martha's Vineyard 3 ♀ - 6010 ✓ - Sta. 879 - dried.
" " " " " " " 6 ♀ 6006 ✓ - " 1153 - "
" " " " " " " 1 ♀ 1 ♂ 6005 ✓ - " 1153 -
" " " " " " " 3 ♀ - 6004 ✓ - " 1112 dried.
" " " " " " " 5 ♀ 6012 ✓ " 879 - dried.
" " " " " " " 3 ♀ 6007 ✓ " 1153 -
" " " " " " 20 ♀ ♂ 6003 ✓ " 1153 -
1 ♀ 6011 ✓ " 874 -
3 ♀ 6008 ✓ 1153 -
15 ♂ 6009 ✓ " 879 - dried.

→ Lernaea branchialis - Cod - Bay of Fundy 1872 - no number - 2 ♀
→ " " - Cod's Gills - no locality - Oct. 23. '78, 1 ♀ in situ
→ " " " " Mass. Bay, selected set. A. E. Verrill, 1 ♀
Dichelesthium sturionis Sharpnose Sturgeon, no local. — 34536 ✓ Verrill - 3 ♀

Lernanthropus pomatomi	–	Bluefish gills	—	Vineyard Sound – 6027	2 ♂,
" brevirostris		Menhaden	"	— " " – 6080	5 ♀
"	"	"	"	" " 6025	6 ♀
				6149	40 ♀
				6170	1 ♀
				6051	1 ♂
Clavella uncinata	—	Cod gills –		Casco Bay, Maine 7997	2 ♀
" "		" "		Cornwall – England – 7998	4 ♀
		Gadus morrhua –		Commander Islands – 1992	6 ♀
		Cod – gills		Brunswick, Maine – 39605	6 ♀
		Cod – gills –		U.S.F.C. "Albatross" — 2578	2 ♀
		Cod gills –		Woods Hole — 20008	25 ♀
		— Interior of Pollachius		carbonarium, Gloucester – 39586	3 ♀
		Cod gills –		Harpswell – Maine — 7994	1 ♀
		Gadus morrhua –		inside of mouth – Str. Albatross – 6140 39623	1 ♀
		Cod fins –		Woods Hole – — 19893	6 ♀
		" "		" " — 39600	5 ♀
		" "		no locality — 42330	1 ♀
		" "		Woods Hole — 19893	10 ♀
		" "		Casco Bay – 42305	3 ♀
		" "		Woods Hole — 1427	15 ♀
		N. Grebnitzky	– no host, no locality –	13706	6 ♀
		Cod gills –		Harpswell, Maine — 7996	3 ♀
		" "		Woods Hole, Mass – 19893	4 ♀
		" "		" " " 7467	5 ♀
		" "		Commander Islands – 7991	1 ♀
		" "		Harpswell, Maine – 7995	2 ♀

Clavella uncinata –	Cod gills –	Harpswell Maine –		39609	3♀
	" "	" "		7993 –	3♀
	" "	Georges Bank –	——	6118 –	4♀
		Rock Cod, Harpswell, Maine –		39598 –	5♀
	" "	Woods Hole.	——	1508 –	5♀
	Gadus macrocephalus –	Chignik Bay, Alaska –		39569 –	4♂
	no host –	—— no locality ——		39590 –	10♀
	Cod gills	Woods Hole ——		1445 –	10♀
	Pollack. (G. virens) –	Casco Bay – Me. —		39572 –	8♀
	" "	" "		39584 –	10♀
	Cod-fish	Woods Hole ——		19893 –	10♀
	" "	" "	——	39588 –	15♀
	" mouth	" "	——	39593 –	2♀
Brachiella thynni –	Tunny-fish	Cornwall – England –		8342 –	1♀
" auserina	Sebastodes glaucus	Bering Island, Siberia –		13655 –	12♀ 4♂
Lernaeopoda falculata –	no host –	Bristol Bay Alaska –		8340 –	1♀
~~Lernaeenicus pomacanthi~~	~~Pomacanthus arcuatus – Woods Hole —~~			~~42308~~	~~4♀~~
Lernaeenicus radiatus –	Clupea chrysocella –	Woods Hole –		42314 –	2♀
" "	Microgadus tomcodus –	" "		42318 –	6♀
" "	Fundulus heteroclitus –	" "		42317 –	6♀
" "	" "	" "		42311 –	4♀
" "	Brevoortia tyrannus	" "		18369 –	10♀
" "	Menhaden	" "		11617 –	2♀
" "	no host given	Vineyard Sound –		6176 –	1♀

Lernaeenicus radiatus	Anguilla bostoniensis	Charlestown S.C.	42322	1 ♀.
" "	Menhaden	Woods Hole, Mass	42331	267.
" "	"	Acushnet River	42323	4 ♀.
" "	Tom Cod	Woods Hole	42321	7 ♀.
" "	Menhaden	Woods Hole	42337	10 ♀.
			42334	3 ♀, 1 ♂
Clavella uncinata	Cod fish gills	" "	42343	1 ♀.
Lernaeenicus radiatus on Fundulus heteroclitus	whole fish with parasites in situ	"	6001	1 ♀
" "	Menhaden	" "	12299	6 ♀
" "	Tom Cod	" "	42350	1 ♀
" "	Smelt	" "	6058	1 ♀
" longicaudris, N.Sp.	Palinurichthys perciformis	Vineyard Sound	8282	2 ♀
" radiatus	Menhaden	Woods Hole	42346	1 ♀
" longicaudris, N.Sp.	Horse-fish	" "	19727	8 ♀
" " "	Yellow Crevalle	" "	12303	1 ♀
" radiatus	Hake	" "	42327	15 ♀
" "	alewife	" "	8287	1 ♀
" "	Cyprinodon variegatus	Vineyard Sound	2107	1 ♀
" longicaudris	Caranx crysos	U.S. Albatross	42312	3 ♀.
" "	Bluefish	Woods Hole.	42345	3 ♀
" radiatus	Menhaden	Greves Fuel Bay	42333	10 ♀
" "	no host	Great Egg Harbor, N.J.	6146	5 ♀
" "	Microgadus tomcodus	Vineyard Sound	42339	5 ♀
" "	Tom cod	Woods Hole, V.H.S.		

Notes sur Les Copépodes ascidicoles. XIII Enterocolides ecaudatus n. gen. n. sp. et l'évolution des Péréiopodes - Chatton & Harant - Bull. Soc. Zool. France, Vol. 47, pp. 245-252

(p. 245) The Enterocolidae comprise hitherto only a single genus Enterocola, P.J. van Beneden (1860), in which we recognize 3 valid species, E. fulgens, P.J. van B. 1860 - E. pterophora Ch. & Br. 1909 and E. mamillifera Ch. & Br. 1922 - Altho these species are perfectly distinct, they differ from each other by characters of slight importance and the genus which they form is the most homogeneous of the Ascidicolidae - Accordingly we think we ought not to spoil this uniformity by introducing a species which varies far more from these 3 species than they do from one another - We create for it the genus Enterocolides. This form is of interest for the morphological transition it exhibits between the 2 groups of Enterocolidae and Haplostomidae, which Canu has opposed the one to the other - We discuss these relations after giving a diagnosis of the genus and the species -

Genus ENTEROCOLIDES. n. gen.

Species type & genus - Enterocolides ecaudatus, n. sp.

Female.

We do not give a detailed diagnosis genus - One will find here only those characters & Enterocolides which differ in their tendency from & diagnosis of Enterocola given by Chatton & Brément.
Pleon much shorter than & péréion, semielliptical, unsegmented - Anus distinctly dorsal,
Pereiopods: 4 pairs ventral, stout, biramose, with exopod as well developed as endopod - the latter destitute of setae - the former armed with lateral and terminal claws - caudal rami absent -

Enterocolides ecaudatus, n. sp

Type of species: 8 adult females and a dozen pairs of ovisacs found in a Distomid, white & globular - about 2 cm in diameter - dredged at Port Vendres Nov. 7, 1910 - Male and young unknown
Female. Situation in host not observed -
Dimensions. 1.50 to 1.70 mm. long (counting the curvature): 0.30 to 0.40 mm. wide - Egg sacs 1-1.20 mm long - 0.25 mm. in greatest diameter -
Coloration generally pale rose - Ovary deep violet against & creamy white - ascidian -
Body with 3 distinct regions in the proportions of 1:5:2 -
Cephalon large, depressed, flattened ventrally & rostrum not very large - without pleural folds - separated from the first péréionite by a dorsal groove -
Péréion with 4 visible segts. separated by vague constrictions, without dorsal duplicature except on & posterior and lateral margins

(over)

~~Sand whose grains are well rounded and large enough to form moderate interspaces furnishes a habitat for a group of copepods which exhibit peculiar characters - Sand containing flat fragments of broken shells, coral sand whose grains are more or less angular and sand whose grains are so small as to practically obliterate the interspaces are not so inhabited - These sand copepods are linear in shape with highly developed tactile antennae and swimming legs modified swimming legs - They cannot be obtained by ordinary towing but must be washed out of the sand - They are mostly harpacticids but include also Cyclopoids and Calanoids - Similarly the mud of the ordinary clam flat between tide marks, the mud between boulders on rocky shores and beneath their mussel beds - Many of these are temporary inhabitants resorting to the moist upper layers of the mud to wait for the returning tide But some of them are peculiar to the habitat and cannot be found in ordinary tow - They are not as much modified as those that live in the sand but show some peculiarities of structure - This group of copepods habitually living in sand or mud may be designated as terraqueous forms to distinguish them from the free swimmers, parasites & commensals -~~

---

of v 4th segt, where they form well developed oostegites, without swellings between the legs -

Pleon, short, subhemispherical, wholly unsegd., without trace of bi-furcation - entirely unarmed -

Orifices. Mouth under a lip, funnel shaped, carrying on its posterior margin 2 chitinous processes which are symmetrical -
Two similar but much smaller processes in the buccal infundibulum
Anus in a longitudinal furrow, opening on v dorsal face of pleon at the line between its second and third portions - Sexual pore with a bilobed swelling - heart shaped - Valves with an irregular chitin framework -

Antennules indistinctly 2-jointed - subcylindrical - sharply & obliquely truncated at their tips, which are prolonged on v outer side by a slender process armed at its tip with 2 unequal conical setae - and at its base with 2 other small conical inner setae - on its upper surface with a long seta and a smaller satellite seta.
Combs of spinules on v base of antenna and on that of external process -

Antennae distinctly 2-jointed, subcylindrical, distal joint much longer than proximal and carrying on its tip 5 stout plumose setae and on v inner margin between v first & 2nd thirds a slender seta.

Mandibles lacking - 1st Mx. biramose, exopod a bilobed lamina, the outer lobe with 4 stout hairy setae, 3 on v distal and 1 on v outer margin - inner lobe with 2 setae - Endopod massive, strongly chitinous, prismatic, slightly bifid - slender, with a very stout seta on its inner margin.
2nd Mx. without distinctive characters -

Péréiopods subequidistant, unequal & dissimilar, biramose with v large base carrying combs of spinules - Exopod acute, with a terminal claw, an outer claw and a blister swelling in v 2 first pairs, without v external claw in v last 2 pairs - Endopod truncated, unarmed, carrying combs of spinules
Oostegites with a seta at v center of their margin

Egg tubes rectilinear, subcylindrical, very reduced, found attached to v female and arranged parallel in a common covering -

In v 3rd + 4th legs this external claw is replaced by a stout stylet –
Endopod spindles with 2 terminal papillae close together, v outer one with a (38)
short seta in v 4th pair – Oostegites enormous –
Caudal rami ellipsoidal, each with a single terminal seta –
Egg sacks long – curved with v concavity dorsal –

XV. Sur trois formes nouvelles du genre Enterocola Beneden

ENTEROCOLA CLAVELINAE, n. sp.

(P. 355)

Type of species – 1 adult ovigerous female found in a Clavelina nana Lah, dredged in v Bay of Morlaix July 21, 1922.

Male Perez showed us some days before v discovery of this female a copepod in place in v gills of another Clavelina nana, which we have not yet been able to study, but which we believe to be a male of Enterocola, probably of this species –

Female Situation in host not observed. 1.30 mm long + 0.35 mm wide – (P. 356) Color pale rose red, Ovary + egg sacks yellow – Body with 3 distinct regions proportions when alive 1.50 ; 6 ; 1,

Cephalon large, elliptical, depressed ventrally, truncated anteriorly without a rostrum, pleural folds scarcely indicated, separated from v 1st pedionite by a dorsal groove –

Pereion with 5 visible segts, separated from one another by dorsal grooves extending onto the sides, but not reaching v ventral surface – Paired dorsal plates on v 4 segments, poorly developed in v 1st segt, increasing on the following segts and forming oostegites on v potential segt. Paired swellings between v legs of 3rd + 4th pairs – absent in v 1st + 2nd pairs –

Pleon short, subcylindrical, strongly curved dorsally – 4-segmented

Orifices Mouth in a depression under v lip, rounded anteriorly – carrying at v two ends of the prebuccal slit 2 processes – Anus in a longitudinal – dorsal groove – sexual pores without specific characters. Vulva with a chitin framework, irregular –

Antennules indistinctly 2-jointed – distal joint much shorter than proximal carrying at its tip 2 setae and a spine, on v anterior surface 2 setae and a spine and on v inner surface 4 small spines –

Antennae with 5 long distal spines, and 1 outer spine much shorter than the others – Very deep invaginations on v margin between v 2nd + 3rd setae counting from the inner margin – giving v appearance of 2 lobes –

1st Maxil. biramose, exopod a lamina not lobed, with 5 stout distal spines and one outer one – Endopod massive strongly chitinized – prismatic bifid lengthwise, smooth, with a very stout spinelike seta on v inner margin near the base –

2nd Max. without specific characters –

Pereiopods subequidistant, subequal, dissimilar, biramose, with a large base. Exopod acute with a terminal claw in pairs 1, 2, + 4, 2-jointed, and a stout stylet in v 3rd pair – Endopod subrectangular, much larger than v exopod, with 2 terminal subequal setae, v outer one partly from the outer margin, but curved inward – Oostegites semicircular, without setae Caudal rami fused at their base in v 4th pleonite, continuing its curve, but slender and rounded at their tips – Egg sacs carried by v female

(P.357)

ENTEROCOLA SYDNII, n. sp. (4)

Type. 1 adult female in v intestine of Sydnium concrescens Giard. dredged at Locquirec (North Coast) July 2 1922. Male + young unknown.

Female Situation in v host not observed; 1.20 mm long, counting v curvature. 0.30 mm in diameter - Color not noted - Body with 3 distinct regions in the proportions of 1, 3.50, and 1.50 -

Cephalon large elliptical, with convex ventral surface, without a rostrum with well developed pleural folds, separated from the 1st péréionite by a dorsal groove -

Péréion with 4 segts, separated by dorsal constrictions; paired plates symmetrical on segts 3 + 4, well developed on segt 5 where they form subcircular oostegites well developed symmetrical paired swellings between each pair of legs, those v 4th pair mucronate.

Pléon conical 5-segd. strongly incurved toward v back.

Orifices Mouth in a depression, with a trapezoid anterior contour, carrying at each end v opening a process - Anus in a dorsoterminal groove - Sex pore without specific characters -

Antennules 1-jointed, short, conical flattened antero-posteriorly, soft; without terminal setae, but with 4 setae, 2 stout and 1 slender, on the first distal third v inner surface and 4 small setae with an areolar base on the anterior surface -

Antennae long and large, distinctly 2-jointed, v distal joint with 5 long and stout distal setae, of which v 3 most (p.358) distal are outer and one inner seta much shorter than v others [illegible]

1st Max. biramous, [illegible] a bifid lamina, v outer lobe carrying 2 distal spines, the tips spine-like, v middle smooth - Endopod massive strongly chitinized, prismatic, bifid lengthwise, smooth, carrying on its anterior surface, at v limit of its distal third, a denticulate apophysis and on its inner surface a stout spine-like seta -

2nd Max. without distinctive characters -

Legs subequidistant, subequal, dissimilar - Basipod large and trapezoid - Exopod acute reduced, carrying a terminal claw in legs 1, 2, + 4, forming a stylet in v 3rd legs - Endopod twice as long as exopod with 2 stout distal setae, a little longer than v endopod itself and curved inward -, Oostégites subcircular laminae, without setae

(p.359) Caudal rami conical, separated from v pléon by a groove but not projecting and continuing its curvature; without setae.

ENTEROCOLA HESSEI, n. sp.

Type. one exuvium empty on v bottom of a widemouthed bottle which had held different compound ascidians received from Duon, Bay of Morlaix, Aug. 25. 1922. This exuvium carried 2 egg sacks with orange eggs -

Female situation in host unknown. 1.50 mm long, 0.40 mm. wide - Ovary + eggs a bright orange. Body with 3 distinct regions -

Cephalon large, elliptical, with neither rostrum nor pleural folds -

Péréion with 4 segts, with rudiments of plates on segts 1 to 4, and two oostégites on v 5th segt - Ventral swellings between v 3rd + 4th legs -

Pléon well delineated, much narrower than v péréion, with indistinct segts, slightly curved dorsally, with a rounded end -

Orifices. Mouth with a large lip on v anterior margin, carrying a

process scored shaped - at either end Anus & sexpore without distinctive (5)
Antennules soft, indistinctly 2-jointed, truncate at the tip with 2 small end setae, a small seta (p. 360) subterminal and 3 inner setae, the latter on a soft crest, the middle one much smaller than the others -
Antennae long and large, spatulate, 2-jointed, with 5 long distal setae of which the 3 most distal are external and an inner seta much smaller than the others, as far from them as they are from one another -
1st Max. biramose. Exopod a lamina vaguely bilobed, the inner lobe with 2 distal stout spines and a much smaller external spine, the outer lobe with 3 spines, the middle one smooth, the others denticulate. Endopod massive, strongly chitinized prismatic, slightly bifid, smooth, with a denticulate spine on its inner surface -
(361) 2nd Max. without distinctive characters - Legs subequidistant, subequal, and uniform - Basipod trapezoid, with a chitinous framework prolonged toward the sagittal plane of body by a long apophysis. Exopod reduced, triangular, with a terminal stylet in the 1st, 2nd, 4th pairs, a terminal stylet in the 3rd pair. Endopod much more developed than the exopod, elongate subrectangular, with 2 distal divergent setae longer than the endo itself - smooth, soft. The external one more on the outer side than on the distal margin - diverging from the axis of joint -
Ovisacs with 2 small setae near the middle of free margin, but on the inner face -
Caudal rami distinctly separated from the pleon, cylindrical, a little tapered and rounded at their tips - without setae -

(p. 399) - Genus HAPLOSTOMELLA, new genus -
Species type - Haplostomella malacocera n. sp.

Haplostomella malacocera, n. sp.

2 ♀♀, one adult and ovigerous, the other subadult, found in an Aplidian taken in the Gulf of Lyons Oct 3, 1910 - 2.50 mm long 0.40 mm wide - Smaller specimen 1.20 mm long 0.20 mm wide - Color whitish, ovaries rose red - eggs deep red -
Body slender subcylindrical, curved, with the concavity dorsal; regions indistinct, the abdomen much narrower than the péréion - Head 1 - péréion 14 - abdomen 1 - Cuticle sharpened on the inner surface -
Cephalon all of a size with the péréion - no cephalic plaque (400) no rostrum, no pleural folds - Two small areas of symmetrical granules behind the labrum - no spiniform scales -
Péréion with indistinct segmentation, only a little swollen at the level of each pair of legs - Neither folds nor dorsal plates, even on the 5th segt. - Groups of spines on the ventral face between the legs and behind the 2nd maxillae
Pléon reduced, not segmented, not out of line with the axis, much shorter and much narrower than the péréion, as if implanted in it and separated abruptly from it dorsally and laterally, subcylindrical, rounded, bifid -
Orifices: Mouth in a transverse furrow at the summit of a lip projecting like a muzzle (401) - Anus in a longitudinal terminal groove. Sexpore without specific characters - Vulvae latero-dorsal, situated in front of péréio-pleonal suture, reinforced by a chitinous circle, interrupted anteriorly - protected by a convex operculum inserted at the level of this interruption, with a lobe projecting on the dorsal margin and a short spine on the ventral margin -
Antennules conical, soft, 1-jointed, with 3 large setae at their tips, 5 or 6 on the distal portion of anterior face, a slender seta on the proximal portion of that face and another on the proximal portion of external surface -

Antennae reduced, soft, indistinctly 2-jointed, slightly bent, carrying at their tip 2 small setae, another on a small papilla, and a much larger seta on an inner apophysis

Mandibles reduced, soft, vaguely bilobed, 2-jointed and truncate, with a hairy seta at v end and an outer swelling –

1st Maxillae lacking – 2nd Maxillae lacking also

Mxpds. powerful, 2-jointed, v distal joint with a claw, v preceding joint with a large smooth apophysis on its inner face, soft and armed with a spine and on its posterior face a process opposed to v claw distal joint –

Legs 5 pairs – Pairs 1 to 4 not equidistant, the distances increasing from in front backward – subequal, partly alike. The 5th pair much reduced and latero-dorsal in position – Pairs 1 to 4 biramose, exopod with two lobes, anterior + posterior, the latter a hook, v former enveloping v other at its base and carrying a short soft seta at its tip – Endopod largely separated from the exopod, a large and soft protuberance, with a bilobed process at the center v posterior margin, and another also bilobed at its inner corner.

5th legs situated a little behind v vulvae, and represented by a chitinous tube surmounted by a 3-lobed process with a seta on v ventral lobe and another on v median lobe and a spine on v dorsal lobe.

Caudal rami cylindro-conical with 3 terminal slender setae unequal in length, and 2 outer setae – (p. 402)

Haplostomella tuberculata n. sp.

Type. 2 immature females in a "cormus" of Parascidia flava Edw, taken at Banyuls Sept. 29th, 1910. 1.50 mm long 0.40 mm wide, or much smaller.

Body thickset, subrectilinear, with 3 regions – Proportions 1 : 5.50 : 1.50 –

Cuticle sheepreened with interesting folds on v two faces –

[illegible] large elliptical, depressed ventrally, narrower (p. 403) than v perion [illegible] without pleural folds and [illegible] typical senses, not with processes at v [illegible] and symmetrical

Perion thickset, subcylindrical, vaguely 5-segmented, with rudiments of paired dorsal plates on v 5 segts, more and more developed from in front backward, each with a very small seta on an areolar base, 4 rows of denticles in v ventral areas between the pairs of legs.

Pleon voluminous, elongate, vaguely 3-segd, the first segt largely fused with v perion, narrower than v latter, the others becoming narrower and narrower – Two very small areolar setigerous papillae at v base of furca –

Orifices Mouth in a transverse furrow at the end of a projecting lip like a muzzle. Anus in a long dorsal furrow. Sex pore not seen. Vulvae with a chitin framework and a weak operculum –

Antennules, large but soft, conical, 1-jointed, each with 3 small terminal setae and two series, one of 5 setae on v distal portion and v other of 3 setae on the median portion –

Antennae reduced, much larger than v antennules, vaguely 2-jointed, and bent with a terminal seta and a small, subdistal, inner process

Mandibles reduced to a stump with a terminal seta

1st Maxillae more developed than v mandibles, but also a stump terminated by a plumose seta

2nd Maxillae Absent.

Mxpds powerful, 3-jointed, v distal joint a claw, v middle joint with a process on its inner distal margin, armed with a spine –

Legs 5 pairs, v first 4 pairs equal, alike, equidistant, biramose, the 5th pair reduced and placed laterodorsal – In v 4 first pairs v exopod has 2 lobes, anterior + posterior, with v anterior one a small ampulla and a terminal chitin hook, v posterior one long + soft with an apical seta – Endopod a crest with a bilobed process – 5th legs represented (p. 404) by a projecting crest on v posterior latero-dorsal margin 5th perionite, armed on v ventral

surface with 2 large setae close together, and a much smaller isolated seta on v dorsal surface -
Caudal rami long, conical, a little curved dorsally and diverging at an angle of 70°, with a depression on v inner margin; with 2 terminal unequal setae, a small termino-external seta and a large termino-dorsal seta -

(p. 408) - Haplostomides scotti, n. gen., n. sp.

Type. One adult female in a cormus of Polyclinum aurantium Edw. taken in v harbor of Paimpol, Aug. 22, 1922 - 2mm. long, 0.50 mm. wide. General color creamy white - digestive tube orange, ovary + eggs violet - (p. 409) Body thickset, more swollen posteriorly than anteriorly, v concavity dorsal, with 3 regions in v proportion of 1.50 : 12 : 1, cuticle smooth -
Cephalon short elliptical, depressed ventrally, without a rostrum, with an apical plate well developed, largely areolar, with pleural folds well indicated tangent with v base v appendages
Pérèion 4 segts, v 5th being fused with v 4th - v pereionites longer and longer and more swollen from in front backward - No dorsal plates except on v 5th segt where they form 2 scales projecting obtusely and a little away from v body -
Pléon 4 segts, largely fused with v pérèion, much wider than thick, v posterior margin concave, vaguely bifid, with 2 very acute and divergent points. Mouth in a transverse groove under a projecting lip, feebly chitinized without papillae - Anus termino-dorsal. Vulvae not noted -
Antennules well developed but soft, truncated, 1-jointed, inserted in a very large base, v 2 bases approaching very close together and having their inner margins parallel their [illegible] length and reinforced by a chitin pad at their anterior end - They carry one quite long and seta and others much shorter - short setae on v inner face 1 2 quite long and a conical setae on a raised portion v posterior face.
Antennae 3-jointed, v distal joint long with an end claw, a stout subterminal inner claw and 2 smaller inner claws far apart -
Mandibles not masticatory, soft uniramose, 1-jointed, elongated stumps with 3 short and soft setae, one terminal and two outer -
1st Maxillae well developed, biramose, v base carrying on its antero-inner surface a large apophysis, Endopod rounded with 2 large piriform papillae on v inner margin and between them 2 short setae, Exopod a rounded lamina with a seta on v anterior face and 4 long plumose setae on v outer margin -
2nd Maxillae vestigial, reduced to soft stumps with 2 diverging setae on v inner side, v posterior one longer than v anterior (p. 410)
Mxpds stout, a 3-jointed stalk, v end joint a claw, v preceding joint with a short conical seta on v inner side -
Legs 4 pairs not equidistant, subequal and similar, with v endopod well developed, base inserted in an oval chitin framework, Endopod a truncated papilla reinforced by chitin ribs - Exopod free for its whole length, with in v 1st + 2nd legs a bifid end claw, 2 outer claws and a short seta, in v 3rd + 4th legs without v end claw - with only one outer claw and 1 seta -
Caudal rami not distinctive, represented by 2 processes, with an end curved claw on v ventral face and a latero-dorsal seta directed ventrally -

Haplostomella Brementi n. sp.

Type 2 adult females found in v common tunic of a cormus of an Aplidium (Aplidium coeruleum Lah.) taken Oct. 1. 1912 Gulf of Lyons
3.50 mm. long - 1 mm. thick -, General color cream, eggs white, ovisacs pearly white -
Body with v curve and dimensions v preceding species - Cuticle very thick and lightly striated longitudinally -
Cephalon as in scotti, but rostral plaque trapezoid, with a small posterior base and v sides reinforced with chitin pads - Behind the mxpds are 3 chitin spine pads which are arranged like a clover leaf on the median line -
Peréion and pléon as in H. scotti -
Antennules large and soft - conical, one-jointed, with a scalloped surface, inserted on a large base, v 2 bases not being tangent and confined by their anterior ends to the rostral plaque - Setae not arranged in 2 groups as in H. scotti, but scattered more evenly around v ~~anterior margin~~ up to v proximal part - (p. 411) 5 large conical setae with enlarged base! - (p. 412) -
Antennae 2-jointed, 2nd joint with a terminal claw, another claw sub-terminal - longer, and a small claw between v 1st & 2nd distal thirds, and a large spur between v 2nd & 3rd portions -
Mandibles reduced, soft, 1-jointed, uniramose with 2 slender terminal setae
1st Maxillae, of small size but complete - biramose, Basipod with a long spine on v antero-internal face - Endopod truncate with 3 slender setae on its distal margin, Exopod a lamina, rounded, with 2 thick, non plumose, setae on its [illegible] and 3 slender plumose setae on v outer margin [illegible] -
2nd Maxillae stumps with 2 end setae Mxpds without special characters -
Legs distributed as in scotti, strongly chitinized - Endopod a truncated protuberance areolar - Exopod with an end claw deeply bifid forming two distinct claws, 1 small claw and 1 outer seta, The small lateral proximal claw lacking in pairs 2.3.4 4. and v small inner claw lacking in 3 & 4 -
Caudal rami 2-jointed, v terminal joint a soft spine, v preceding joint with a dorso-external seta -

(p. 413) - Haplostoma canui n. sp. -

Type 3 adult females found in a cormus of Polyclinium aurantium Edw. at Roscoff Aug. 22. 1922 1 to 1.50 mm. long, 0.30 to 0.45 mm. wide -
General color pale rose red - digestive tube orange brown, ovary & eggs chalky white - Body thickset, more swollen posteriorly than anteriorly - curved with v concavity dorsal, with 3 regions in the proportion of 1 1 4 1 1.
Cephalon short elliptical, depressed ventrally, rostrum very small - cephalic plaque well developed, areolar - no pleural folds -
Peréion 4 segts, v 4th & 5th fused - segts longer & more swollen from (p. 414) in front backward - no dorsal plates except on v 5th segt where it forms 2 symmetrical pads without setae, projecting in front of vulvae -
Pléon vaguely 4 segmented, v first segt largely fused with v peréion, v following segts separated by a constriction - much wider than thick and bifid at its tip, v 2 points a little divergent -

1936. Chevey, P. et J. Lemasson - Sur une Lernée parasite des Carpes et Carassins au Tonkin - Bull. Soc. Zool. France Tome 61, No. 1, 1936, pp. 4-9, text figs. 1-3. (1)

1936. Lindberg, K. Un nouveau Cyclopide d'eau douce de l'Iran, Mesocyclops iranicus, n. sp., hôte intermédiaire probable du Ver de Médine à Lar. Bull. Soc. Zool. France, Vol. 61, No. 4, 1936, pp. 253-257; text figs. 1-4.

During a voyage in Laristan, v S.E. district of province of Fars (Iran meridional), v only region of Iran where v dracunculose is endemic, collections of Cyclops have been made, with a view of studying v Cyclops fauna susceptible of serving as an intermediate host in that region for Dracunculus medinensis. Collections have been made first in the rain water cisterns at Lar, and also in v wells and the inner basins of mosques - The wells contain brackish water as well as v artificial water course along v surface v ground which brings water from v foot of mountains 6 kilometers from v village. At v time of my visit the depth of water in v reservoirs was nowhere less than 2 meters and in general a meter or less -

MESOCYCLOPS IRANICUS

A large species, somewhat stocky - Length of ♀ 1,50 mm. The 1st cephalothoracic segt is much wider than long and exceeds in length v following thoracic segts combined. The lateral margins of last segt carries some small hairs. On v distal margins of 2 or 3 1st abdominal segts is a row of small teeth varying in size in different individuals. The genital segt, whose width proximally is less than that of 5th segt, is almost as wide as long and tapers gradually backwards. It is longer than v 3 following segts, which are nearly equal. Caudal rami slightly divergent or almost parallel - in general much shorter than v 2 last segts, but longer than v last one alone - armed with long and fine hairs on v inner margin - 3 1/3 to 4 times as long as wide - The outer lateral seta divides v margin 2 to 1. The dorsal seta is quite long, a little shorter than v external apical seta - inner apical seta 2 1/2 to 3 times as long as v outer -

The 1st antennae reaches v distal border of 2nd thoracic segt when turned back - v last 2 segts with a hyaline membrane, coarsely dentate in specimens from v basins of mosque, larger and finely dentate in those found elsewhere - The 1st + 16th are v longest segts. v 3rd, 6th + 8th v shortest. The upper margin of 2nd segt of maxilliped has a bended hook, well marked in specimens from v reservoirs - less so in v others - Legs with 3 segts - terminal exopod segt with 4 setae - formula of spines 2, 3, 3, 3. Terminal segt of endopod of 4th leg 2 1/2 to 3 times as long as wide, with 2 apical spines, v inner much longer than v outer, but shorter than v segt. Basal lamina of 4th leg with a short tooth on each side - 5th leg with basal segt armed with one outer seta, usually v shortest of appendage - 2nd segt has an apical seta, v longest of appendage and a spine on v inner margin close to v tip - armed with long + short hairs - Semen receptacle in v form of a hammer, v arms of upper are narrowed toward v base, resembling M. dybowskyi + M. rylovi.
Gen segt of ♀ armed with 2 spines, v inner much smaller, and an outer seta, 10 times v length of median spine, Eggs large, rounded, ovisacs turned backward 20 to 50 in each ovisac - Male a little over 1 mm long; its genital armature (over)

is formed of a long dorsal seta and 2 outer spines - Color grayish white -

NOTES SUR LES COPÉPODES ASCIDICOLES ②

XIV. *Lequerrea perezi*, n. gen. n. sp. Enterocolien parasite d'une Ascidie Simple by Edouard Chatton + Hervé Harant - Bull. Soc. Zool. Paris Vol. 49. pp 347-354, Fig. 1, 1-4.

Genus LEQUERREA. new - Type - L. perezi. n. sp -

Female. We give here as characters of genus those which differ from the diagnosis of Enterocola and Enterocolidae.

Pléon much shorter than peréion, truncate-conical - unseg'd -

Anus termino-dorsal - Antennules + antennae absent - Legs 4 pairs ventral, stout, biramose, exopod as well developed as endopod, the latter with rudimentary setae, or vestiges of them, the former with terminal + lateral claws

Caudal rami cylindrical, elongate, with or without setae -

Lequerrea perezi - n. sp.

Female. Fastened in the intestine or stomach of ascidian: 4 mm. total length reckoning the curvature but not the ovisacs - 0.90 mm. wide - Ovisacs 3 mm. long counting the curvature - General color creamy white - ovary + eggs a bright orange.

Body with 2 distinct regions without separation of peréion-pléon, in the proportion of 1 to 7 - after extension in potash 1 to 9 -

Cephalon large, elliptical, depressed ventrally, without a rostrum with pleural folds, pléon separated by a dorsal groove -

Peréion with 5 seg'ts visible, separated by constrictions, without dorsal plates except the 3rd. seg't which has 2 symmetrical oostegites - On the 1st peréionite in the center of ventral face an unpaired soft papilla, very saillient, curved toward the head - No paired swellings between the legs - irregular lines of denticles in these regions -

Pléon truncate conical - not seg'd, with no anterior limit - carrying irregular lines of denticles

Orifices. Mouth in a depression under the lips, near the apex of head - the posterior margin of lip armed with denticles. It carries in the center a triangle of granules, with the apex posterior and bifid and above the latter two parallel fields of denticles - At the 2 ends of buccal slit is a process covered with hairs + spines

Antennules + antennae lacking - probably the antennules - Antennae vaguely 2-jointed large and soft, carrying 5 slender subterminal setae, one much smaller than the others, and 4 inner slender setae

1st Mx, very stout, biramose, exopod a lamina slightly bilobed - external lobe with 2 distal setae, truncate-conical, straight, subequal, spinelike, destitute of an outer seta - Inner lobe with 3 distal setae, truncate conical, slightly curved, spine-like

Endopod massive, stout, strongly chitinous - subprismatic - slightly bifid - soft - with a stout apophysis, projecting but blunt, on the external surface - On the same surface near the base a small bent apophysis denticled - and on the anterior face a very stout seta inserted in a large circular base, with long fine hairs oblique with respect to the seta

2nd Mx very stout, exopod a calk, bifid at its distal end, which is chitinous and finely granular; on the outer face of calk a seta raised on a cylindrical base At its base on the inner side a stout apophysis -

Legs subequidistant - subequal - dissimilar - biramose - The large basipod carries lines of denticles and toward the base of endopod some areolas - Endopod much shorter than the exopod, the exopod of 4th pair much larger than the preceding ones. Exopod acute, 2-seg'd - on the first 2 pairs with a terminal claw of first joint and a similar external one at the distal margin of first third of 2nd joint

Orifices Mouth in a transverse groove, without papillae, but with a lower lip finely striated. Anus in a longitudinal termino-dorsal groove. Sex pores not distinctive, vulvae armed with an operculum having 2 large and 4 small spines on its free border. The 2 vulvae in a dorsal chitin area subrectangular in form. (p. 415)
Antennules reduced, feeble, truncate, one-jointed, with 3 terminal or subterminal setae and a dozen small setae on the anterior face.
Antennae robust, 3-jointed, with a large (laterally) trunk, the distal joint with 1 terminal bifid claw and 3 terminal inner claws.
Mandibles vestigial, reduced to a cylindro-conical papilla with a single end seta. 1st + 2nd Maxillae absent.
Maxillipeds robust, 3-jointed, the end joint with a claw. neither an inner hypophysis nor a seta on the 2nd joint.
Legs 4 pairs not equidistant, subequal, dissimilar, without endopodal lobes. Basipod large vesicular. Exopod fused to the basipod for two-thirds of its length, chitinized on its outer face, vaguely 2-jointed, the distal joint with a bifid end tooth, and a simple outer tooth. The proximal joint with 3 simple outer teeth in pairs 1 and 2, and 2 simple outer teeth in pairs 3 + 4.
Caudal Rami fused with the pleonal lobes. short, truncate, ending in a button inserted in a chitin circle and with a short conical seta on its dorso-outer face.
This species differs from brevicauda in the fusion of pléon + péréion and the reduction of endopods.

Monard A. Note sur quelques formes nouvelles d'Harpacticides marins de la Région de Banyuls. Bull. Soc. Zool. France, vol. 49, 1924, pp. 656–672: 41 text figs.
Syngastes, n. gen., p. 656. S. cornalinus n. sp., p. 657: figs. 1–8, S. macrognathus, n. sp. p. 660: figs. 9–12. Amphiascus dictydiophorus, p. 662: figs. 13–17.
Peltthestes n. gen., p. 666. P. tripartita, n. sp. p. 667: figs. 24–32.
Ateutha sarsi, n. sp. p. 669: figs. 33–41. (p. 29 these notes)

Rose, Maurice. Sur le plankton du golfe de Siam et des Côtes d'Annam. Bull. Soc. Zool. France. Vol. 49, pp. 482–486.
List of copepod names only, p. 485.

Roy, J. Sur un Harpacticide muscicole Moraenobiotus vejdovskyi Mrazek, var. tenuispina mihi. do. pp. 36–44: 12 text-figs.
Roy, J. Sur un nouvel Harpacticide muscicole Canthocamptus gauthieri do. pp. 461–468: 18 text figs.

Chevey, P et J. Lemasson. Sur une Lernée parasite des carpes et carassius au Tonkin. do. vol. 61, No. 1, pp. 4–9 13 text figs.
Lernaea carassii Tidd.

Jakubisiak, St. Sur la distribution géographique d'Ectinosoma abrau (Kritchag) = E. edwardsi Richard - Bull. Soc. Zool. France Vol. 57, 1932 pp. 201-205 - (10)
occurs in both fresh and salt water -

Jakubisiak, St. Sur les Harpacticoides hébergés par Maia squinado. do, Vol. 57, 1932, pp. 506 — 513; 2 text figs -
In the fragments covering the back of this decapod may be found living freely
Longipedia minor Scott - Canuella perplexa Scott -
Ectinosoma melaniceps Boeck Ectinosoma normani Scott
Harpacticus gracilis Claus - Harpacticus littoralis Sars,
Idya furcata Baird, Idya longicornis Scott Idya elongatula Sars -
Rhynchothalestris rufocincta Norman - Dactylopusia tisboides Claus
Dactylopusia vulgaris Sars - Pseudothalestris pygmaea (Scott) -
Pseudothalestris minuta (Claus) - Diosaccus tenuicornis Claus
Amphiascus phyllopus Sars Amphiascus parvus Sars
Amphiascus hispidus Norman - Amphiascus debilis Giesbrecht
Ameira tau, Mesochra lilljeborgi Boeck, Laophonte cornuta Philippi
Laophonte brevirostris Claus L. strömi Baird, L. similis Claus
Laophonte royi n. sp. p. 509; fig. 1, Laophontodes typicus Scott
Hemilaophonte janinae n. gen. n. sp. p. 510; fig. 2. (see description p. 30 these notes)

Fage, Louis. Remarques sur le parasitisme des Copepodes du genre Penella - Bull Soc Zool France, Vol. 56, 1931. pp. 190-193 -
Pennella germonia n. sp. p. 191 - described by Leigh-Sharpe
This new species is distinguished from P. balaenoptera by the absence of unpaired buccal horn Debert and others, seen in the latter. Judging from authors's descriptions this buccal horn is sometimes present and sometimes absent in the same species - This is true of P. orthogoriscii Leigh-Sharpe. But I contend that, if the Pennellids do not parasitize indifferently whales and fish, there is nothing in their organization that reveals the nature of the parasite host - P. balaenopterae, antarctica and charcoti do not differ from the species infesting teleosts by any common character.
This fact calls for certain reflections. The parasitism of Pennella is complete - It remains for some time with most of its body placed in the vital parts of its host, and nourishes itself for its entire life by the vital fluids of the host - Now it finds itself placed in physiological conditions very different according as it is fixed on a whale or on a fish - not only by reason of special nature of exchanges which are established, but also by the difference in the temperature of host - In one case it is fixed on a warm blooded mammal with a temperature above 37° C. and in the other case in a teleost whose temperature is in equilibrium with that of water - Doubtless the Pennellas are eurythermous animals, capable of withstanding certain changes of temperature - However on a whole the temperature is not only elevated but also constant. If there is any diversity in the metabolism it does not show itself by any modification of form.

Proc. Liverpool Biol. Soc. vol. 4. p. 115-124. 1890

Goodsir 1845
Sterope ovalis, p. 325: pl. 11, fig. 11 Sterope armatus p. 326: pl. 11, fig. 9
Cecrops oblongus, p. 326: pl. 11 fig. 12, Sterope interruptus, p. 326: pl. 11, fig. 10
Nanus spinatus, p. 326: pl. 11, fig. 1

Hesse 1860 – Compte Rendu. Vol. 51. p. 715
Milne-Edwards presented in the name of Hesse 2 vials in which were
1° many embryos of Caligus, fixed to their mother by a membranous expansion
2°. 8 or 10 embryos of Trebius, also fixed by a membranous expansion to the gills of a Gadus –
"These materials fonts" says Hesse in his letter, confirm the curious discovery which I have made and which I have consigned to a memoir which I have addressed on this subject to the Academy and which bears the title "Des Moyens singuliers, à l'aide desquels certains Crustacés parasites assurent la conservation de leur espèce pendant la phase embryonnaire" –
(Referred to a committee, M-Edwards and Quatrefages)

Gravier, Comptes Rendus, Vol. 158, p. 354
On the branches of arborescent colonies formed by 2 species of Alcyonaria taken during the second French antarctic expedition and received by Dr. J. Liouville (Primnoisis formosa Gravier, Mopsea gracilis Gravier), are a sort of galls which contain crustacean parasites in varying numbers. The large individuals are females – those of smaller size are males, and perhaps young whose sex is not yet apparent. In some of these galls I have found eggs in various stages of development, a large number being unsegmented – others showed nauplii inside of their enveloping membrane. The parasite did not appear to hinder the development of the Alcyonarian – since in certain galls coexisted the eggs of the polyps and the smaller eggs of the crustacean.

In Primnoisis formosa the female, especially when bearing eggs, has a thickset form. The segmentation is quite distinct in the thoracic region; the separation of the thorax and abdomen is generally indistinct. The dimensions of the parasite are variable for they are in proportion to the state of contraction of the latter, which can modify its form considerably, by reason of the thinness of the superficial covering of chitin. The females, when mature, were from 1.30 to 1.60 mm. long. The greatest width was in the segt with the 2nd pair of legs, always marked by deep grooves, from 0.50 to 0.85 mm –

At the anterior end of the body, on the ventral face are inserted on the mid line the 2 antennules, of medium length, not segmented, terminating in a soft point, and presenting on their surface only 4 small horny papillae in the vicinity of their free end – A little behind these are attached the antennae, unsegmented, each with an end claw –

The mouth parts are extremely reduced. The mouth has v form of a groove, circular convex, opening forward. It is bordered behind by a pad whose posterior part reaches to v first pair of legs; in front it is limited by a large median languette, surrounding which is a chitin rim whose anterior border is situated between v bases of antennae. At v summit of v branches of circumflex protuberance made by v mouth one sees an appendage in v form of a hook slightly curved, which is difficult to make out in some specimens. There are only 2 pairs of thoracic appendages, poorly developed, resembling each other, not jointed, and inserted close together in v middle of ventral surface. Their base which corresponds to the protopodite, is relatively large; their free portion is armed with two hooks side by side, v inner one a little smaller than v outer. Behind v hooks on each side is a protuberance, possibly v endopod, v part armed with v hooks being v exopod. The 2 appendages of each pair are joined by a median piece, which results in a solidarity of their movements. The second pair of appendages is like v first, but is a little larger. Such appendages can only serve for fixation to v wall of gall by means of their terminal claws. The female openings are surrounded by a chitin rim quite thickset. One sees, from v transparence, that the ovaries extend to v level of 2nd pair of appendages. There are no ovisacs. The furca is made up of 2 stumps, whose surface is ornamented by 3 end papillae, 2 dorsal and one ventral, simple cuticular processes similar to those of antennules. Certain females carry at one vulvar orifice a spermatophore in v form of an elongate cylinder continued by a very fine tube. Each of these orifices in one female examined was provided with a spermatophore. One of it was filled with sperm. The other was detached from v tube which only remained in place. There is no sexual dimorphism, v male is externally just like v ♀ but reduced in size. The 2 testicles open close together near v midline of ventral surface.

In *Mopsea gracilis* I have found parasites identical with v preceding. In *Primnoisis ramosa* Thoms. et Rich. (v 1st antarctic French expedition) one sees galls like those in *P. formosa* and containing crustaceans very similar if not identical with those here described. Unfortunately their state of preservation was too poor, together with that of v host, to allow careful study.

This crustacean parasite unquestionably belongs in v family *Lamippidae*. It is very clearly distinguished from v species of the genera *Lamippe* Bruzelius and *Linaresia* Zulueta, by v segmentation of body of which there is no trace in these 2 genera and by v feeble development and very reduced ornamentation of v furca. It is equally distinguished by its habitat. While all v Lamippidae actually known live exclusively in v canals of coenosarc of Alcyonarians, this one from v Antarctic passes a part of its life in v galls whose formation it causes. I propose to give v name *Isidicola* to this new genus of crustaceans, which seem to live in representatives of family *Isidae* Gray. The species here described will be *Isidicola antarctica*.

Kane 1901 –
Enumerates several localities in Scotland and Ireland where
Mysis relicta and a larger Mysis oculata are found –

Henscher – 1916 –
Cyclops strenuus, p. 77 – leuckarti, p. 79 – Diaptomus gracilis p. 79
D. laciniatus, p. 80 Heterocope weismanni p. 88

Keilhack, 1909.
names of copepods only – no notes –

Keilhack, Ludwig. Beiträge zur Kenntnis der Süsswasserfauna der Dauphiné-Alpen – Archiv Hydrob. Vol. 4, pp. 311–324: Pl. 6.
Genus Maraenobiotus – p. 311 – systematic position
Maraenobiotus alpinus, n. s. p. 313: pl. 6, figs. 1–14.

Haberbosch, Paul. Ueber Süsswasser-Harpacticiden – Archiv Hydrob. – Vol 11, pp. 593–605 = 14 text-figs, 1 table –
Nitocra hibernica – p. 596: fig. 1. Canthocamptus staphylinus, p. 597: fig. 2.
Epactophanes richardi, p. 598: fig. 3, Moraria poppei & M. varica, p. 599, figs 4–5.
Maraenobiotus vejdovskyi. p. 600: fig. 6 – Canthocamptus gracilis, p. 601; fig. 7.
Canthocamptus crassus & minutus, p. 602; figs. 8–9. C. species, p. 603: figs. 10–11
Cant. echinatus, p. 603: fig. 12. C. zschokkei, p. 603; fig. 13.
C. cuspidatus – p. 604: fig. 14.

Menzel. Rich. – Moosbewohnende Harpacticiden und Ostracoden aus Ost-Afrika – Archiv Hydrob. Vol. 11, pp. 478–489; 21 text-figs.
Canthocamptus schröderi, p. 479: figs. 1–9
Canthocamptus unidens, n. sp., p. 483; figs. 10–15.

Keilhack – 1914 –
Canthocamptus schmeili the only copepod

Haller 1880 – p. 67. Diagnosis of Zausoscidium, n. gen.,
Both rami of first pair of legs prehensile; exopod with 3 segts, smaller armed with apical claws; endopod stouter, 2-jointed, subchelate –

Fage 1923. Quotes Wilson 1907 description and finds some differences in his specimens in the distribution of spines and setae

Apstein, 1910 – To what depth can an organism sink and still appear fresh (14)

Nauplius sinks one meter in			55 mins.		5 secs.	
Oithona spinirostris	"	"	" 40	"	37	"
Temora longicornis	"	"	" 5	"	43	"
Pseudocalanus elongatus	"	"	" 10	"	00	"
Calanus finmarchicus	"	"	3	"	21	"

Ekman, 1913. Summary –

Previous investigations have plainly settled that v latter ˇ2 species here studied, which lives as a "relict" in several relict lakes in v northern parts ˇ old as well as v new world, is a descendant ˇ former – The 2 species differ chiefly in v shape ˇ head. The dorsal contour ˇforhead of *grimaldii* is very slightly vaulted, it rises nowhere so high as v continuation ˇ dorsal contour ˇ hind part ˇcephalothorax, and just a little above v mouth forms a distinct angle – The dorsal contour ˇforhead of *macrurus* is considerably vaulted, almost semicircular, its highest point is higher than v dorsal contour ˇ hind part ˇ cephalothorax, this highest point is separated from v hind part ˇcephalothorax by a distinct concavity and there is no angle above v mouth. When v water contains less salt, as in v northern Baltic *grimaldii* gets a head form which somewhat approaches that of *macrurus*. The differences between v various freshwater populations is very great but sufficient material will give a continuous series from v extreme *grimaldii* to v extreme *macrurus* –

The different local forms have not arisen on account of different food, temperature, etc., nor as a result ˇ lack of salt, or of isolation, but v transformation has been v greater, v longer v life in fresh water has lasted. The earlier v lake was shut off from v sea, v more v transformation has proceeded – In v oldest relict lakes v extreme *macrurus* is found, while in v newest ones v extreme *grimaldii* lives – The period of formation ˇ extreme *macrurus* can be estimated at 6000 years

The transformation cannot depend on ordinary selection, it must imply an uninterrupted accumulation of hereditary changes quite independent of selection – A change of surroundings acting upon a vast number of generations produces an hereditary genotypic transformation increasing without any increase ˇ change ˇ surroundings "akkumulative Fernwirkung"

Ekman 1915 –

Cyclops viridis + C. gigas, p. 303 – C. abyssicola, p. 305, C. strenuus, p. 305 C. agilis, p. 306, C. fimbriatus, p. 306 Attheyella crassa, p. 306, A. dentheri, p. 307

Hartmann, 1915 – Differences in v structure ˇ 5th legs in both sexes and v new locations is Graz

---

Borg, T. Zur Biologie von Ergasilus sieboldi Nordmann – Mem. de l'Institut a Cracovie (Pologne), Rok 1933, No. 21

Halisch, 1934. Distinguishes Ergasilus minor from sieboldi –

Kiefer, F. Zur Kenntnis der Oithonidae (Crustacea Copepoda, Cyclopoida) Zool. Anz. Bd. 112, Heft 11/12 Dec. 1935. pp. 322—327

Dioithona alia. n. gen. n. sp. p. 323; figs. 1–9 –

Kiefer, F. Weitere neue Ruderfusskrebse (Crustacea Copepoda) aus Indien (Aus den Ergebnissen der "Yale North India Expedition 1932)

Zool. Anz. Bd. 113. Heft 1/2 pp. 1–6 ; 11 text figs –

Arctodiaptomus (Stenodiaptomus) alteranus, n. sp. p. 1; figs. 1–4.

Tropodiaptomus euchaetus, n. sp. p. 3; figs. 5–6. Eucyclops productus n. sp. p. 4.

Cyclops ladakanus, n. sp. p. 5; figs. 7–9 –

Cyclops hutchinsoni n. sp. p. 6; figs – 10–11 –

Kiefer, F. Ein neuer Cyclopide (Crustacea Copepoda) aus dem Grundwasser der Oberrheinischen Tiefebene – Zool. Anz. Bd. 113. Heft 3/4. pp. 84–87; 8 text figs –

Diacyclops lasii n. sp. p. 85; figs. 1–8

Keifer, F. Indische Ruderfusskrebse (Crustacea Copepoda). Zool. Anz. Bd 113 Heft 5/6, pp. 136 – 142; 11 text figs.

Allodiaptomus raoi – n. gen. n. sp. p. 137; figs. 1–6 –

——— mirabilipes, n. sp., p. 139; figs. 7–11.

Allodiaptomus – genus diagnosis, p. 142 –

This book of more than 1000 pages with 316 text-figs and 41 plates, in which many new species and genera are described, is a welcome addition to our copepod literature – It is especially noteworthy that to the descriptive part work a key to all the copepod genera is added, which also is not restricted to the region investigated, and whose establishment covers an immense range of literature – In an accompanying note to this key to the genera, in which the author points out that he has not included the fantasy products of Table. [illegible]

Gicklhorn, 1930 – It is still doubtful if the region immediately beneath the so-called lenses is directly innervated from the brain –

Gagern, 1925
Notes many variations in the first antennae, mandible and first maxillae –

Enders + Rifenburg, 1928 – Eggs hatch in 3 days into oval nauplii 0,12 mm. long with 3 pairs of appendages. These swim about jerkily for a few hours (less than a day) and transform into metanauplii, pear-shaped, 0,15 mm long with a pair of spines on the sides. They remain in the metanauplius stage about 4 days and molt again – They now have several free segts, and 7 pairs of appendages, and are 0,28 mm long and narrower than the metanauplii – The 2nd antennae and

(over)

and nauplii have claws ready to attach to a host. This is first copepodid stage. They die in 3 to 5 days in cultures not supplied with food.

(16)

El Sofy, 1933, describes in detail musculature, digestive system, circulation, excretory glands, nervous system and reproductive system of several species

Andrews. Arthur 1872

Polyphemus pediculus exhibited - Lynceus, Sida, Daphnia and Acantholeberis - all Cladocerans -

Annandale 1907.

Cyclops leuckarti only copepod mentioned, p. 40.

Atkins, D. Two parasites of common Cockle Cardium edule, a Rhabdocele, Paravortex cardii Hallez and a copepod, Paranthessius rostratus (Canu) Jour. Mar. Biol. Assn. Plymouth, Vol. 19, 1934, pp. 98-100 -

Bogorov, B. G. Seasonal changes in Biomass of Calanus fin- in the Plymouth area in 1930 - idem, pp. 585-612: 8 figs -

Bowkiewicz, J. Zur Kenntnis des Planktons der Seen des Suwalki Gebietes - Fragmenta faun. Mus. Zool. Polon. Vol. 2, 1934, pp. 151-150 -

New - Beiträge zur Cladoceren- und Copepoden-Fauna der Seen des Suwalki - Gebietes - idem, pp. [illegible]-196 -

Ewers, L. A. The larval developmt of Freshwater Copepods - Contrib. Franz Theodore Stone Lab. Columbus, Ohio, No. 3, 1930, pp. 1-43: 13 pls, text-fig -

Gallico, E. Alcuni Copepodi liberi del lago di Mantova e distribuzione geografica in Italia e Colonie - Boll. Zool. Torino, Vol. 5 1934, pp. 123-136: 193-198 -

Gallien, L. Description du male de Monstrilla helgolandica Claus - Synonymie de Monstrilla sericornis Sars et Monstrilla helgolandica Claus - Bull. Soc. Zool. France, Vol 57, 1934, pp. 377-382: 2 figs - (p. 23)

Gurney, R. The crustacean parasites of fishes - Nat. Hist. Mag. London, Vol 4, 1934, pp. 305-307 -

Gurney R. The development of certain parasitic copepoda of Families Caligidae and Clavellidae - Proc. Zool. Soc. London, 1934, pp. 177-217: 43 figs -

Caligus centrodonti - Nauplius - p. 178, figs 1+2 -
Caligus labracis - Copepodid, p. 181, fig. 3.
Caligus centrodonti - Copepodid, fig. 4
Lepeophtheirus thompsoni - Copepodid, fig. 5.
Caligus centrodonti - chalimus, fig. 6; p. 183, figs. 8+9, 10+11, 14, 15, 16.
Caligus labracis chalimus, p. 183, fig. 7+12 -
Lepeophtheirus pollachii, p. 187, fig. 13.

Caligus diaphanus, p. 191, fig. 17
Trebius caudatus, p. 192: figs. 18-21.
Clavella uncinata - p. 198, figs. 22-28-29-42
Epibrachiella impudica, p. 214, fig. 43

Hentschel, E. Eine Methode zur Untersuchung von Copepodenbevölkerungen - Rapp. Cons. Explor. Mer, Copenh. - Vol. 89, pt. 3, 1934, pp. 93-97: 4 figs.

Halisch, W. Ergasilus minor, ein neuer Parasit auf der Kieme der Schleie. Zool. Anz. 106, 1934, pp. 317-321: 2 figs.

Kirtisinghe, P. Parasitic infection of Porcupine Fish (Pennella) - Nature, London, 133, 1934, p. 142 Pennella sagitta? sometimes one, sometimes 20 or 30 on a fish which came ashore by thousands on the coast of Ceylon.

Kozminski, Z. La position systématique de Cyclops strenuus des lacs alpestres, C. R. Séan. Soc. Sci. Lett. Varsovie (4) 25 (1933) pp. 111-12.

idem. Ueber die morphologische Gruppierung der Arten des Subgenus Cyclops - Mém. polon. Sci. Cracovie, 1934, B. pp. 105-121: 1 pl. 1 fig.

idem. Ueber die ökologische Verteilung einiger limnetischer Cyclopiden in den Wigryseen. Verh. int. Verein Limnol. Stuttgart 6, 1934, pp. 299-307: 4 figs.

Monod, T. Sur un Copépode parasite de Trochus niloticus. Rec. Ind. Mus. Calcutta, 36, 1934, pp. 213-218: 5 figs. (26 figs.)
Pandarus incrmerata Stebbing.

Sewell, R. B. Seymour. A Study of the Fauna of the Salt Lakes of Calcutta - Rec. Ind. Mus. Calcutta 36, part 1, 1934, pp. 45-121: 12 text figs.
Paracalanus dubia Sewell - Acrocalanus inermis Sewell - p. 71.
Diaptomus blanci Guerne & Richard - D. cinctus Gurney - D. contortus Gurney, p. 72
D. orientalis Brady - D. strigilipes Gurney - p. 72 - fig. 2, a
Diaptomus indicus, sp. nov., p. 73: fig 2, b-g-
Diaptomus viduus Gurney, p. 75: fig. 3, a-d-
Pseudodiaptomus annandalei Sewell - P. binghami Sewell - p. 78-
P. lobipes Gurney - P. tollingeri Sewell - P. hickmani Sewell. P. aurivillii Cleve, p. 79
Labidocera gangetica, sp. n., p. 79: Tortella andersoni Sewell, p. 80-
Acartia chilkaensis Sewell - A. plumosa T. Scott, p. 80
A. spinicauda Giesb. - A. tortaniformis Sewell - A. major Sewell - p. 81.
Oithona brevicornis Giesb. O. horai n. sp., p. 82: fig. 4, a-j-
Cyclopina longifurca Sewell, p. 84. C. minuta, sp. n. p. 85: fig. 5, a-f.
Halicyclops aequoreus Fischer, propinquus Sars, tenuispina Sewell, p. 87
Cyclops dengizicus Lepeschkin, p. 87,
Mesocyclops leuckarti Claus, p. 88: fig. 6, a-k.
Mesocyclops ryllovi Smirnov, p. 91, fig. 7, a-d-
Ectinosoma melaniceps Boeck. p. 92 - Parategastes sphaericus - p. 94
Stenhelia longifurca, sp. nov. p. 94: fig. 8, a-j

Mesochra meridionalis Sars, p. 96: fig. 9, a-f.
Laophonte bengalensis, sp. n. p. 98: figs. 10, a-k
Limnocletodes secundus sp. n. p. 101: fig 11, a-h.
Cletocamptus confluens (Schmeil) - p. 102
Tachidius sp. p. 103: fig. 12, a-e,

Steuer, Adolph. Two new Copepods of the genus Acartia from Burma
Rec. Ind. Mus. Vol. 36, 1934, part III, pp. 335-338: pl. V.
Acartia sewelli, sp. n. p. 335: pl. 5, figs. 1-7
Acartia chilkaensis, var. sittangi. new. p. 336: pl. 5, figs. 8-14.

Price, R. L. Metamorphosis of Cyclops viridis - Trans. Amer. Micros. Soc.
Menasha - 53, 1934, pp. 280-292; 2 pls.

Redeke, H. C. On occurrence of two pelagic copepods, Acartia
bifilosa and Acartia tonsa in brackish waters of Netherlands
J. Conseil Copenhague 9, 1934, pp. 39-43; 3 figs.

Roy, J. Sur les Copépodes de la Côte d'Or. 2me note Complément
des Centropagidae et Harpacticidae, 3me note Cyclopidae. Bull. Sci.
Bourgogne 2, 1933, pp. 27-30 = 3, 1934, pp. 65-76

idem - Sur les espèces du genre Bryocamptus Westwood répartis
dans les plaines Françaises - Bull. Soc. Zool. France 59, 1934,
pp. 366-370 - [illegible]

idem - Sur les expériences de croisement et de fécondation artifi-
cielle réalisées chez l'Harpacticoïde - Bryocamptus [illegible] - C. R. Acad. Sci. Paris, 199, 1934
pp. 1669-1671 - see p. 20 of these notes - (p. 20)

Rylov, V. M. Résultats scientifiques de l'Expédition hydrofaunistique du
Musée Zoologique dans la Sibérie orientale en 1927 - IV. Les Eucopépodes
d'eau douce de la région de l'Oussouri - Trav. Inst. Zool. Acad. Sci.
Leningrad, 1, 1933, pp. 243-280 - 6 pls.

Rzóska, J. Contribution à l'étude des Copépodes de la Grande Pologne -
Bull. Soc. Amis Sci. Poznań (B) 1, 1925, pp. 34-43: 1 pl.

idem - idem (B), 3, 1925, pp. 45-92 - 1 pl.

Sewell, R. B. Seymour. Notes on a small collection of marine Copepoda
from the Malay States - Bull. Raffles Mus. Singapore, No. 8, 1933, pp. 25-31.

Smirnov, S. Ueber eine neue D'Arcythompsonia-Art aus dem
Japanischen Meer - Zool. Anz. 108, 1934, pp. 118-122: 7 figs.
D'Arcythompsonia inopinata - p. 118, figs. 1-7.

Sømme, J. D. Animal Plankton of Norwegian Coast waters & open sea.
I Production of Calanus finmarchicus & C. hyperboreus in the Lofoten Sea -
Rep. Norweg. Fish. Investig. Bergen 4, no 9, 1934, pp. 1-163: 45 figs.

Stekhoven, J. H. S. Zur Sinnesphysiologie der parasitären Copepoden Lepeophtheirus pectoralis (O. F. Müller) and Acanthochondria depressa (T. Scott) (19)
Z. Parasitenkunde Berlin, 7, 1934, pp. 336-362; 20 figs.

Conclusions

1. Lepeophtheirus pectoralis is a pronounced ground animal
2. In its behavior it is guided chiefly by tactile stimuli and light stimuli
3. Current stimuli in this copepod are nothing but tactile stimuli
4. It does not possess a chemical sense perception
6. When at rest the copepods ~~animals~~ always place themselves so that their bodies are parallel with the support.
7. During the movements of running, swimming, darting, dashing from their support, turning summersaults, turning around their long axis, the movement forward is accomplished by the swimming legs and the movements of abdomen assist them in darting.
8. For tactile stimuli the outer skin is especially sensitive
9. The clinging to their host is accomplished by the Antennae which are modified for this purpose
10. The clinging reflex is central.
11. Amputation of one or both antennules destroys the equilibrium of the animal and induces a swimming toward the uninjured side
12. In swimming the copepods maintain a stable equilibrium.
13. They sink slowly to the bottom and come thereby to lie on their backs in consequence of peculiar make-like form of body — since the center of gravity lies nearer the back.
14. Lepeophtheirus is feebly positively geotactic.
15. These parasites reach their host partly accidentally when they chance upon the locality of a resting flounder. If mass infection can take place, then the ability of Lepeophtheirus to whirl about with considerable agility.
16. Acanthochondria ~~can~~ is capable of but ~~little~~ feeble locomotion since the stilt-like legs are of little service in moving about.
17. This parasite can right itself when lying on its back.
18. This parasite is ~~sensitive~~ to tactile stimuli and clings on if it gets an opportunity with its Antennae.

Wilson, C. B. An interesting habitat for copepods. Nature Vol. 136 Dec. 28, 1935 - p. 1031. Abstract of paper on A new & important habitat for Copepods.

Roy, 1934 –

1, If we place together a ♂ aquatique and a ♀ muscicole – or a ♂ muscicole and a ♀ aquatique, both of sexual maturity – no spontaneous crossing takes place nor even any attraction – There is an incontestable physiological barrier between these two races of same species –

2, We have endeavored to introduce the spermatophores of one race into the orifice of receptaculum seminis of other race – For this delicate operation, new to the entomostraca, the instrument was a platinum hair with paraffine at its tip – The fixation was made under the binocular in small paraffined cells – In 300 trials we succeeded 72 times – 24 to a hundred attempts –

3, 15 ♀ aquatiques artificially fertilized from a ♂ muscicole – and 15 ♀ muscicoles fertilized from ♂ aquatiques were isolated – A reserve of other females was kept to complete failure fertilizations –

4, The first 15 females (♀A. × ♂M.) gave 102 eggs which developed only 81 adults in 12 to 26 days – Biologically and morphologically these adults were all aquatiques – The second 15 females produced 75 eggs, from which 47 adults developed – and here also all were aquatiques. No muscicole was visible in this first generation – This time natural crossings between the two groups will be possible –

5, Study of second generation from spontaneous crossings

♀I × ♂I : 82 eggs	– 26 metanauplii,	19 adults	;	4 muscicoles
♀II × ♂II : 50 "	7 "	5 "	;	no muscicole
[illegible]	[illegible]	14 "	;	no muscicole
♀I × ♂II : 74 "	34 "	22 "	;	5 muscicoles

6, the [illegible] the muscicole character is dominated in the first generation – but reappears in one fourth of second generation if the ♀ belongs to group I / If the female belongs to group II the mortality is enormous and there are no muscicoles in the adult state –

1934. Nakai, N. and E. Kokai – On the biological study of a parasitic Copepod, Lernaea elegans Leigh-Sharpe, infesting on Japanese fishes – Jour. Imp. Fisheries Exp. Station Tokyo – Vol. 2. pp. 93–121 – English abstract p. 123–128 – 1 pl. 12 text figs –
There is a direct relationship between water temperature and the time of developt of all stages in the life cycle. Temps from 14° to 32° are favorable to developt – To free fish of parasites a salinity of 0.76–1.10% for 3 days or more is necessary – The host fish cannot stand over 1.41% Bleaching powder containing 1.0001% chlorine kills the Lernaea in 3 days and should preferably be used in water of 14° C. temperature –

1931. Heberer, G. Genese und Bau der Copepodengemini – Zool. Anz. Suppl. 5 p. 207–213; 6 figs – Evidence is given that the "cross-splitting" has nothing to do with conjugation and segregation, and that pairing is in reality telosynaptic – Structures formed by telosynapsis are very similar to those formed by parasynapsis –

Bremer, 1914 -
The first copepod had v form and right antenna of a male but also oviduct eggs and 5 attached spermatophores. The second copepod was a developed male as shown by v form "cephalothorax, v geniculate antennae, v 5th legs and a male sexual apparatus - Yet v abdomen was as large and similar to that "♀ but had an ovary on v left side and an oviduct leading to the sex opening in v gen. segt -

1931. Schiklejew, S. M. Einige neue Arten und Varietaten der Eucopepoda aus den Süsswässern des kaukasischen Naturschutzgebietes und seiner nächsten Umgebung - Zool Anz, 94 (5/8) 185-194; 7 figs -
Canthocamptus aisolghoi n. sp. p. 185 -
Cyclops fimbriatus, var, anyschghtzara n. var. p. 188 -
Cyclops macrurus, var, caucasicus, new, p. 190 -

1930. Kalita, S. R. Zooplankton v "Old Kuban" basin near Krasnodar - North Caucasus - Trav. Sta. Biol Caucase du Nord, 3(1/3). 91-109; Map; 1 pl.; 4 figs;
7 Copepoda recorded

1931. Riester, Albert - Muskulatur von Copilia Dana, mit einem Anhang über die Mundteile, die Ernährung und die Lebensweise Zool. Jahrb, Abt. Anat. u. Ontog. Tiere, 53(2) 317-404; 52 figs -
The whole muscular system of Copilia mirabilis. The supplement treats v mouth parts "males + females "genus Copilia; those "males can be easily identified -

1931. Bull, H. O. Resistance of Eurytemora hirundoides Nordquist, a brackish water copepod to Oxygen depletion. - Nature, London, 127(3202), 406-407. -
Eurytemora was found surviving until v oxygen entirely disappeared.

1931. Worthington, E. B. Vertical movements of freshwater macroplankton - Trans. Linnaean Soc., London, No. 142, 67-69 (1929-30). In Lake Lucerne v Crustacea begin to descend at dawn forced down by light - reaching lowest level before noon (50-60 m). Then more slowly upward continuing after dusk. Hunger causes v rise since v nannoplankton is most abundant at surface

1930. Kocian, Voj. Un cas d'hétéromorphose chez Argulus foliaceus Linn Arch. Zool. Exper. et Gén, Notes + Rev. 70(1) 23-27. 2 figs -
Regeneration of amputated abdomen took form of plesiomorphosis, i.e. supplemental organs appeared in abnormal positions. The portion regenerated bore 2 pairs appendages - of which v 2nd pair, with numerous joints in v exopod + endopod, showed analogy with v furca of copepods from a functional viewpoint and by its topographical position - Between v 2 pairs of appendages developed a spherical organ, which from its topographical position and chitinization must be regarded as a regenerated ovary -

1930. Sciacchitano, Iginio, Copepodi raccolti dalla R. Nave "Ammiraglio Magnaghi". Boll Zool Unione Zool Italiana 1(4) 149-151 — Nota preliminare (22)

Euchaeta arabica ♂, p. 149. Xanthocalanus gigas ♀, p. 150
Amallophora cristata, p. 150 —

1931 Creaser. E.P. Some cohabitants of burrowing crayfish — Ecology 12(1) 243-244 —
A copepod in a burrow of *Cambarus diogenes*

1930. Brug, S.L. Dracunculus medinensis in the Dutch East Indies Mededeel. Dienst. Volksgezondheid Ned-Indië 19(1). 153-157 3 pls.
Cyclops leuckarti was infected with Dracunculus larvae, and fed to a monkey, from which a year afterward a full grown female Dracunculus was obtained —

1931. Johnson. E.M. An attempt to control Cyclops in a water plant.
Jour Amer Water Works Assn (Proc. 50 year) 23(4) 582-585.
$CuSO_4$ in large doses — prechlorination at 0.8 p.p.m. failed
Chlorine 1.5 p.p.m. were partly effective
Chlorine 1.0 — 3.0 p.p.m. were effective —

1928. Markovs'kii, Iu. Zooplankton of the Ingules River. Acad. Sci. Ukraine 10(2) 113-156: 5 figs —
... into 5 different regions
... with peculiar morphometric + hydrologic features. 8 copepods —

1931. Willey, A. ... conditions in Hudson Bay & Hudson Bay Copepod plankton — Contrib. Canadian Biol. 6(25) 485-493
The plankton as a whole mixed arctic and boreal in type, poor in copepods with *Temora longicornis* abund.

1932 Friedrich, Hermann, Die Augen einiger Corycäiden. Zeitwiss Zool. 141(1): 1-35: 24 figs —
The small median eye is over & in front of brain and contains optic and secretory cells. In the large lenticular eyes the dioptric apparatus consists of cuticular lens, the tube filled with humor and the crystalline body — The optic cells are attached to the crystalline body and send out behind an elongated pigment cup — Each optic cell contains a long inner body on which the nerves end — The eyes are inverted —

1931. Copepod phenology, Observations based on new material from Canada and Bermuda. Arch. Zool. Italiano 16(1/2) 601-617; 4 pls —
Pseudobradya goddiensis, n. sp. p. 607; figs. 10, c-d; 21; 22 —
Nannopus discophora ♂, p. 607: Figs. 16-18 —
——— pygmoides, n. sp. p. 607: Figs. 4-5: 24; 26 —
——— lunata n. sp. p. 608: Figs. 13-14: 27-31 —
Amphiascus bermudae, n. sp. p. 610: Figs. 1-2: 32-37 —
——— hirsutus bermudae, p. 611: Figs. 38, 39, 42
Robertsonia laxata n. sp., p. 612: Figs. 19: 44-47: 57
——— flaviduta, n. sp., p. 613: Figs. 48-56

A Willey

Harpacticoid copepods exhibit precocious mating in a marked degree. The capture and clasping by fully grown males of very young females having several ecdyses still in prospect are normal procedures in v littoral zone. The male often retains his hold after v eggs have been extruded into v ovisacs

1931. Davis, L. J. A note on some experiments with agents lethal to Cyclops. Trans. Roy. Soc. Trop. Med. and Hyg. 24(6). 631-633.
Quick lime + ordinary slaked lime added to water in v proportion of 1 to 1000 kills certain species of Cyclops in 6 hours.

1932. Scourfield, D. J. A new species of Cyclops found on v cliff face at Tenby (Cyclops (Bryocyclops) demetiensis, n. sp.). Ann. Mag. Nat. Hist. 10(10) 559-570: 23 figs.
Cyclops demetiensis, found in earthy material mixed with moss on v face cliff where a minute trickle of water oozed through

1930. Baldi, Edgardo. Studien über Hochseen des Monte Rosa. I Diaptomus bacillifer Koelbel in den Seen des Hohen Antogratals. Internat. Rev. Hydrob. u. Hydrog. 24(1/2) 97-121: 11 figs.
Historical review v species + its distribution - emphasis on divergence from European representatives v species. Morphological characters previously overlooked found + figured

1931. Hilton, Irene F. The oogenesis of Calanus finmarchicus. Quart. Jour. Micros. Sci. 74(2) 193-222: 2 pls.: 5 figs.
3 zones in ovary - 1, multiplication zone, 2, synapsis zone, 3 growth zone. 2 or 3 nucleoli in oogonial nucleus fused into one in v oocyte.

1929. Storch, Otto. Die Schwimmbewegung der Copepoden, auf Grund von Mikro-Zeitlupenaufnahmen analysiert. Zool. Anz. Suppl. Bd. 4: 118-129 3 figs. A timed micro-camera (100 pictures per sec) - swimming movements involve 3 organs - 1st antennae, legs, and abdomen - antennae for suspension - legs for forward motion - abdomen for steering.

1934. Gallien, Louis. Description du male de Monstrilla helgolandica Claus. Synonymie de Monstrilla serricornis, Sars et de Monstrilla helgolandica Claus. Bull. Soc. Zool. France 59(5). 377-382 fig. 1 - A-F, fig 2. A-F.
On v beaches near v laboratory of Wimereux are numerous mussel beds. It is easy to find in v byssus of mussels a gastropod parasite - Odostomia rissoides Hanley which is sometimes parasitized by a copepod Monstrilla helgolandica Claus.
Having isolated 10 Odostomia parasites in small watch glasses containing filtered sea water, I found in v following days that v copepods (p. 378) abandoned their host. After molting they maintained v free planktonic life which characterizes v adult. But their swimming, very active at first, gradually slackened and they rested on v bottom and 12 hours after leaving their host they died. In these conditions I have been able to obtain neither coupling nor egg laying.
Of v 10 Odostomia - 5 harbored 1 female copepod - 2 one male and 3 others contained each a male and female. I thus obtained 5 males and 8 females. (p. 379)

Male 1.10 - 1.15 mm long. Cephalic seg't 1/3 v entire length - no mouth tube abdomen with 4 distinct seg'ts, v first (gen. seg't.) carrying a copulatory appendage directed obliquely backward and ending in 2 lobes slightly denticulated. The furca ends in 5 setae, plumose, divergent, v central one short ...

Two coalescent eyes form a large black spot medio-dorsal – Antennae 2/3 v length v cephalic segt, 5-jointed, v last, very mobile, has 3 inner subapical rows of denticles – 4 pairs of legs, v 2 basipod joints indistinct, endopod & exopod 3-jointed – 2 spines on v outer margin exopod, 5th leg wholly lacking – The free adult is brown. It swims actively and shows positive phototropism –

Female 2 mm long, varying in different individuals – Cephalic segt fusiform half v body length – mouth median – Abdomen 3-jointed, v first (gen segt) very large, dilated at v base then tapered – It carries 2 separate ovigerous spines, which reach just beyond v furca – Furca with 5 setae v central one v shortest – A pair of small brilliant eyes – Antennae 4-jointed less than half as long as v cephalic segt. 5 prs of legs – 2 segts of basipod not distinct – endopods & exopods 3-seg'd, exopod much longer with 2 outer spines – 5th legs are narrow, elongate and carry 2 sub-equal setae, v inner one plumose – When alive and before egg laying the cephalic segt is (p. 380) green from v eggs, v rest of body brown – It swims rapidly and shows positive phototropism –

On comparing v characters of male with those of Sars' M. serricornis I am forced to conclude that the two are really v same species,

1935. Gallien Louis, Pseudanthessius nemertophilus, n. sp. Copépode commensal de Lineus longissimus (nemertian) – Bull. Soc. Zool. France 60(5): 451–457 13 figs, A–C, A–I, A–Q.

Found creeping on v surface of body v nemertean, their white color standing out against v brown-violet integument of host – 10 to 15 on one nemertean – It rests on [illegible] region [illegible] and a little [illegible] portion of abdomen – while v last thoracic segts do not touch v host – but are above it – The copepod is bent at a point between v thorax and v abdomen, this region forming v point of a reversed V, whose branches are v cephalothorax and v abdomen – The copepods separated from v nemerteans swim rapidly and jerkily, each jerk followed by a more or less long rest.

Female (p. 454) Body elongate – cephalic region large, especially in mature individuals, presenting anteriorly a frontal prominence – Cephalic segt less than twice v 3 following segts, 5th segt reduced & narrow – a red nauplius eye – Abdomen long, exceeding half v cephalic length – 3 last segts equal – Gen. segt shorter than v 3 following segts together – enlarged anteriorly with 2 small lateral lobes, conical posteriorly & wider than v foll. segts. Furca well developed but less than half v abdomen length – a lateral seta at v center, 5 terminal setae of unequal length, v central one v longest –
First antennule 7-jointed, with long setae, 2nd joint v longest – Second antennae shorter with 4 joints, with fewer setae, 2nd joint v longest – v last joint with 6 setae 3 of which are claw-like – Mouth parts normal, covered by a bilobed upper lip, alike in both sexes except v 2nd max – which in v female are 3-jointed larger and end in a short claw – Three first pairs of legs normal – v endopod of 4th pair 1-jointed with 2 spines – end segt of exopod with a smaller claw – 5th leg reduced, sessile, with an end spine and 2 setae – Ovisacs fusiform General color white –

Male Like v female but much smaller (p. 456) – about 1 mm. in adults, v cephalothorax relatively smaller – The separation of head & first segt more distinct – Mxpds very different from those of female – 3-jointed, v first 2 joints swollen – Gen. segt swollen with 2 lateral setae –

Stella, E, Il diaptomide del lago di Molveno - Boll. (20)
Zool, Torino, 4, 1933, pp. 193-198: 3 figs -

Uéno, M. A new subterranean Copepod from Japan - Proc Imp
Acad Tokyo, 10, 1934, pp. 229-232: 1 fig -
Eucyclops nagasaki. sp. n. p. 229: fig. 1, A—J.

Harasawa, I, On the relative activities of Diaptomus chaffanjoni and Cyclops strenuus at different temperatures -
Proc. Imp. Acad, Japan, Vol. 11, 1935, pp.
The periodicity of Cyclops strenuus is opposed to that of Diaptomus
It increases in number in the cold season and reaches the maximum
number at the time when the water is cooled below the critical temperature
of Diaptomus, 8°-10° C. The Diaptomus actively propagates when
the water temperature is above 16°-17°C, and with the cooling of the
water below this point gradually decreases in numbers -

Willey, A. Some Laurentian Copepods and their variations
Trans, Can. Inst. Toronto, 20, 1934, pp. 77-98: 3 pls,
Canthocamptus hiatus - type of a new subgenus Pentacamptus p. 77
figs, 1-10 - Canthocamptus [illegible], n. n, p. [illegible]; figs. 11-13.
Canthocamptus obatogamensis, n. sp, p. 81; figs, 14-21
Canthocamptus cuspidatus Schmeil, p. 83; fig, 22
C. minutus, Claus, p. 83; fig. 23, C. illinoisensis Forbes, p. 84; fig
C. subgracilis, n. sp, p. 85; figs. 24-27
Cyclops affinis Sars - p. 87, C. languidulus sp. n., p. 89; figs. 28-30
C. vernalis, Fischer, p. 89; figs. 32, 39, 42 -
C. venustus Norman & Scott, p. 90; figs, 31, 33—38; 40-41,
C. modestus Herrick, p. 93.

Jirovec, O und Wenig, K - Das Atmung von Argulus foliaceus
Zeit vergl. Physiol. 20, 1934, pp. 450-453; 2 figs -

1932. Stammer, Hans Jurgen - Die Fauna des Timavo. Ein Beitrag zur Kenntnis der Höhlengewässer des Süss- und Brackwassers im Karst - Zool Jahrb, Abt. syst. Ökol. u Geog. Tiere, vol. 63, no. 5/6, pp. 521-656 - 6 maps
10 figs -
43 spp. of copepods -

Witschi, Emil, On determinative cleavage and yolk formation in the Harpacticid Copepod Tisbe furcata (Baird) - Biol. Bull. Vol. 67. No. 3, pp. 335—340; 15 figs -

1934. Gurney Robert - The development of Rhincalanus - Discovery Repts (Gov. Dependencies, Falkland Islands) vol. 9, pp. 207-214; 7 figs - (22)
Rhincalanus cornutus, nauplius stages 2, 3, 4, 5, 6, and copepodid stage I -
1933. Bloch Mlle Françoise et M. Louis Gallien - Sur un copépode parasite de la ponte de Carcinus maenas Pennant (Choniostomyzon maenadis n. gen; n. sp. Comp. Rend. Acad. Sci. Paris 197, pp. 491-493

On v eggs of Carcinus maenas, Portunus puber, Portunus holsatus Maia squinado at Wimereux -
The adult female has a globular body, v general form somewhat like that v crab (350 μ around). Segmentation only indicated by slight traces on v ventral surface (p. 492) A nauplius eye between v antennae. Antennules 11-jointed; Antennae modified in accord with v mode of life long (5 segts) curved into a hook and terminated by a peigne armed with setae - Mouth & mouth parts very complicated - Mouth situated at v center v ventral surface, is surrounded by a chitin disk with marginal setae. It forms a ventouse connected with v exoskeleton. Mandibles stylet shaped, v point projecting into v mouth - obliquely v point backward. The maxillae form a small languette ending in 4 setae. The grouping of these mouth parts makes a specialized apparatus used by v copepod for retaining (ventouse) and perforating [illegible] 3 segts, v last with [illegible] curved, ending like v antennae in [illegible] The combination 2nd [illegible] forming a system of articulated claws which [illegible]
2 pairs of thoracic legs, biramose, rami 2-segd, Furca ends in 5 setae) - Color v voluminous digestive tract orange yellow being full v vitellus v crab's eggs. Ovisacs carried on a long peduncle and contain only one or 2 eggs - and are fastened by v copepod on v stems to which v crab's eggs are fastened)
This copepod in form & appendages approaches Cancerilla tubulata, and belongs to v family Choniostomatidae -
From λεκιθος, vitellus and μυζαω sucker -

Cyclops kieferi Schäfer, specific name preoccupied - changed to Cyclops silesinus Schäfer - Zool. Anz 105: (7/8), p. 234

Monti, Rina e Emilia Stella - Il lago di Molveno - La vita in un lago zootrofo, Mem. Mus. Storia Nat. Venezia Tridentina 2: 69-101; Map, 3 pls.
Cyclops strenuus, Diaptomus denticornis molvenensis, var. n. p. 82: pl. 1.
1932. Henriksen, Kai L. The manner of moulting in Arthropoda. Notulae Ent. Helsingfors, 11 (3/4) 103-127; 14 figs -
In copepoda v sagittal suture extends through head, thorax, and sometimes into some abdominal segts as in Cyclops -

1926. Rose, Maurice. Le plankton de la baie d'Alger pendant le mois de décembre - Bull. Soc. Hist. Nat. Afrique Nord, 17(1): 44-48. (25)
List of names only

1926. Fadeev, N. N. The Plankton of Lake Abrau (Russian, French summary) Rept. North Kaukas Hydrobiol. Sta. 1(2) 1-18: 1 pl.
Tachidius abrau Kich identical with Ectinosoma edwardsi Richd. and the proper name is Ectinosoma abrau (Krich.)

1926. Dodds, G. S. Entomostraca from the Panama Canal Zone with description of one new species - Occasional Papers, Mus. Zool. Univ. Michigan 174: 1-27: 3 figs.
14 Copepoda - none new

1926. Farran, G. P. Biscayan plankton collected during a cruise of H.M.S. "Research" 1900 - part XIV The Copepoda - Jour. Linn. Soc. London Zool. 36 (243) 219-310: 6 pls; 2 figs -

1926. Gray, Peter. On the nutrition of the male of Lernaeopoda scyllicola - Parasitology, 18 (4): 399-401: 4 figs
Male found on (left) shoulder of ♀; 10 elongated sacs found on each side of midline of ♀; those on left side open into pouch at junction of trunk + cephalothorax. These glands may be used for production + storage of food for ♂, and for them the name "bromatophores" is proposed -

1928. Lowndes, A. G. Freshwater copepoda and hydrogen ion concentration. Ann. Mag. Nat. Hist. Ser. 10. 1 (4) 457-460: Table.
Ranges of pH for 43 spp. of freshwater copepods from 5.0 to 9.8 - Observations over a period of years justify conclusion that gradual changes of pH have no direct or toxic influence on copepods though there may be an optimum value for each species -
Copepods included 3 Calanids 7 harpacticids and 33 cyclopids -

1927.
Brehm, V. Ueber die Tiefenfauna japanischer Seen - Archiv Hydrob. 18(1): 135-15: 27 figs.
Canthocamptus nakaii, n. sp., p. 138: figs. 1-13
—— japonicus, n. sp. p. 142: figs. 14-16.
—— calvus, n. sp. p. 143: figs. 17-22.

1926. Heberer, G. Zur Kenntnis der männlichen Generationsorgane der Cyclopiden - Zool. Anz. Suppl.-Bd 2: 141-148: 3 figs.

1927. Sars, G. O. The freshwater Entomostraca of Cape Province, Part III Copepoda Ann. So. African Mus. 25(1): 85-149: 12 pls.
23 spp., 3 from dried mud,
Lovenula falcifera (Lovén), p. 86: pl. 5 (figs. 1-12); pl. 6, figs. 1-5
—— barnardi, sp. n. p. 92: pl. 6, figs. 6-9 -
Paradiaptomus lamellatus Sars, p. 94: pl. 7, figs. 1-14.
Diaptomus capensis Sars, p. 98: pl. 8, figs. 1-12
—— rigidus, n. sp. p. 10[illegible]: pl. 8, figs. 13-18
—— purcelli Sars, p. 103: pl. 9, figs. 1-8
—— congruens, n. sp., p. 106: pl. 9, figs. 9-13
Cyclops tenuisaccus, n. sp. p. 108: pl. 10, figs. 1-13

Mesocyclops obsoletus (Koch), p. 112; pl. 10, figs 14-18
——— reptans Sars, p. 113; pl. 10, figs. 19-22
——— oblongatus, n. sp., p. 114; pl. 11, figs. 1-15
——— major, n. sp., p. 116; pl. 11, figs. 16-20
Leptocyclops sublaevis n. sp., p. 117; pl. 12, figs. 1-10
——— prasinus (Fischer), p. 119; pl. 12, figs. 11-20
Afrocyclops gibsoni (Brady), p. 121; pl. 13, figs. 1-18.
Platycyclops phaleratus (Koch), p. 125; pl. 14, figs. 1-4
——— poppei (Rehberg), p. 126; pl. 14, figs. 5-17.
Cryptocyclops assimilis, n. sp., p. 129; pl. 15, figs. 1-8
——— crassipes, n. sp., p. 131; pl. 15, figs. 9-14
——— caudatus n. sp., p. 133; pl. 15, figs. 15-20
——— inopinatus n. sp., p. 134; pl. 15, figs. 21-25
Nitocra dubia, n. sp., p. 137; pl. 16, figs. 1-10
Harpacticus meridionalis, n. sp., p. 140; pl. 16, figs. 11-22.

1927. Anonymous – Attheyella wulmeri Kerhervé – Rept. Marlborough College Nat. Hist. Soc. 76: 69-73: 1 pl. 10 figs.

1927. [illegible] – Biocönosen der Phyllopoda und Copepoda (Exc. Harpacticidae) des Sees Toporowy im polnischen Tatra des Tatragebirges – Bull. internat. Acad. Polonaise Sci + Lettr. Ser. B. 1926 (9/10): 881-954.
3 communities, middle of lake Diaptomus denticornis; inner littoral Heterocope saliens, true littoral Cyclops fuscus, albidus and serrulatus – Two minor communities – lake bottom + moss are slightly developed.

1926. Monterosso, Bruno. Funzione meccanica nel sincizio della parete uterina in Peroderma cylindricum Heller – Boll. Soc. Biol. Sperim. 1 (6): 702-705: 1 fig.
wall is thickest in young without ova and in adults that have discharged ova, thinnest when uterus contains ova, hence such a wall must be quite elastic.

1928. Matsui, Yoschiichi, and Asao Kumada – Studies on Fish-disease. 1. "Ikari-mushi" (Lernaea elegans Leigh-Sharpe), a new parasitic copepod of Japanese eel. Jour. Imp. Fish. Inst. Tokyo, 23 (4): 101-107: 3 pls.
Found in the buccal cavity and rarely on the skin of eel and as an ectoparasite among the scales of various fish – Increasing the salinity acts unfavorably on the parasite.

1928, Bening, A. L. Notes on the fauna of wells of Saratov. (Russian, German summary) Arb. Biol (Wolga-Sta) 10(1)31-54 1 pl. 6 figs.
Gives list of 9 copepods

1927. Ivanfi, Ede. A pontytetü (Argulus foliaceus) morphologiája és biologiája (Hungarian, German resumé) Archiv Balatonicum, Budapest; 1(2), 145-163: 16 figs.

1927. Bangham, R. V. Life history of bass cestode, Proteocephalus ambloplitis; Trans. Amer. Fish. Soc. 57: 206-208.
First stage found in Cyclops, Cyclops eaten by small fish
Small fish eaten by bass —

1929. Rzóska, Juljan. Notiz über Ectinosoma edwardsi Richard. Zool Anz. 76(11/12): 285-288.
Lives in bottom mud, usually only in waters that have had marine connection; when occurring elsewhere it may have been carried by water fowl. Unlike other copepods its body is water repellant and when at the surface and half out of water capillary forces tend to force it out and it cannot again enter the water. It may thus become attached to water fowl and be transported.

1927. Pelosse, J. Considérations sur la faune des Cladocères et des Copépodes du Lac d'Issarlès (Ardèche) Bull. Soc. Zool. France 52: 237-593
Diaptomus, Cyclops, Canthocamptus, Moraria — names only

1927. idem. Contribution à la connaissance de la faune d'eau douce des Alpes de Savoie — idem, pp. 153-162.
names only with localities

1929. Candeias, Alberto. Première liste des copépodes des côtes du Portugal. Bull. Soc. Portug. Sci. Nat. 10(3) 23-58: 2 pls.
45 Calanoida, 2 Cyclopoida, 15 Harpacticoida —

1927. Roy, Jean et Henri Gauthier. Sur les copépodes d'Algerie et Tunisie (eaux douces et eaux saumâtres. Bull. Soc. Zool. France 52: 558-575: 7 figs
10 Centropagidae, 25 Cyclopidae, 6 Harpacticidae — brief notes —

1926. Salfi, Mario. Su un nuovo copepodo ascidicolo del genere Aplostoma Canu — Aplostoma sycozoae n. sp. Ann Mus Zool R. Univ Napoli 5(15) 1-4 2 figs.

1928. Monod, Th. Les Argulidés du Musée du Congo — Inventaire systématique, comprenant la description d'Argulus schoutedeni n. sp. et liste générale critique des Branchiures africains, tant marins que dulcaquicoles — Rev. Zool. Bot. Africaines. 16(3) 242-274: 10 pls.: 1 fig.
Argulus schoutedeni, p. 249.

1927, Herter, Konrad. Reizphysiologische Untersuchungen an der Karpfenlaus (*Argulus foliaceus* L.). Zeitsch. wiss. Biol. Abt. C Physiol. 5(2) 283-370; 48 figs. (28)

A. foliaceus is a temporary parasite, occurring abundantly on European fish, on which experiments were carried out with different excitants. Contact stimulation caused rapid movements of the legs and even swimming when applied to the resting Argulus. The free swimming copepod reacts by rapid swimming to the bottom, usually followed by fastening. This is designated as "shooting". The parasite reacts to a stream of water by turning its head against the stream and creeping in that direction. For this reason most parasites occupy a position on the fish behind the operculum or the pectoral fins. The free swimming Argulus usually swims against the current or "shoots". In diffuse daylight the animals swim 5-10 cm. above the bottom. Expts with a vertical temperature gradient show that Argulus has a temp. sense and the collection of animals indicates an optimum between 28° and 30° C. Above 30° the animals swim wildly. On blotting paper soaked with the juice of decaying fish the parasites move about actively and do not at once leave as they do when put on clean paper. They have therefore a chemical perception for fish. They suck physiological salt solution colored with neutral red out of a glass tube, the end of which is closed with fish skin. They attach themselves to the larvae of *Bufo vulgaris*, although they die as a result. The taste (olfactory?) receptors therefore seem not to be well differentiated. Chemical perception of fish at a distance does not occur. The animals react positively to diffuse daylight and to light from an artificial source. With stronger illumination they become positively geotactic and swim downwards. In reacting to light Argulus turns so that the light falls directly on the dorsal side. This is termed a phototropotactic reaction. With illumination from 2 sources of light of equal intensity and equal distance, Argulus swims [illegible] [illegible] to 1 of 2 sources, or first directly to sources, along the line bisecting [illegible] [illegible] by the stream of light [illegible] [illegible] [illegible] [illegible] light. That orientation is tropistic can be shown by unilateral destruction of eye, after which the animal turns in circles toward the intact side, although at first the circling is toward the operated side (stimulation of injury?). Electrical stimulation elicits a condition of rigor. Argulus does not show galvanotaxis, but with weak currents the endopodes is bent ventrally and the legs are thrust forward, while strong currents have a contrary effect. This is to be referred to the double innervation of arthropod muscles. With the constant current the closing is stronger than the opening effect, but with induced currents the reverse is true. Fish behave in different ways toward Argulus. While *Phoxinus laevis* eats the parasite *Gasterosteus aculeatus* always rejects it. *Cyprinus carassius* and *Tinca vulgaris* eat the parasite only when very hungry. Small fish and tadpoles may be killed by Argulus. Argulus attaches itself to a fish if, while swimming, it accidentally comes in contact with the host, or the parasite may find the host by reacting to currents set up by the respiratory or fin movements of the fish, causing the Argulus to "shoot". The finding of the host is therefore conditioned by mechanical stimulation. The chemical perception of fish after the contact has been made informs the parasite if it is on a true host.

1929 Vrzalová, A. Beiträge zur Biologie von *Diaptomus amblyodon*. Zool. Anz. 86(3/4): 83-87.

Appears in a pool in Moravia in Jan or Feb. Develop^t^ lasts 52 days. It progresses in wavy lines ~~as a nauplius~~ or in spirals or circles, which result from the curving of the abdomen with the furca. The ♂ always seizes the ♀ by the furca and after successful copulation does not die. The nauplius is [illegible] red in color.

1929. Harvey, J. M. The action of light on Calanus finmarchicus (Gunner) as determined by its effect on the heart rate - Contrib. Canadian Biol. 5(1/5) 85-92 - (29)

Rate of heart beat increases as injury is inflicted by direct sunlight. Recovery may occur in 6 days from injury from a 4 hours exposure while continuous exposure for 8 hours is fatal. The blue portion of spectrum is more injurious than the green, the red, or the whole spectrum -

1930. Herberer, Gerhard - Die Struktur der Oocyten von Eucalanus elongatus Dana mit Bemerkungen über den Bau des weiblichen Genitalapparates - Zeit. wiss. Zool. 136 (2) 155-194: 2 pls. 17 figs

1930. Sokolova, M. F. Plankton of Lake Ladoga, northwestern Russia (Russian, German summary) Inst. Hydrol. Études de la Néva et de son Bassin. 6: 53-67: Map

14 spp. of copepods -

1930 Jakubisiak, Stanislaw - Notatka o skorupiakach widlonogich z grupy Harpacticoida Zatoki Puckiej - (Polish, French summary), Fragmenta Faunistica Mus. Zool. Polonici 1(2) 113-19

The completely brackish species are divided into 2 categories, steno-haline (Laophonte nana, Leptastacus, Huntemannia), euryhaline (Laophonte mohammed, Horsiella brevicornis, Mesochra rapiens, Nitocra spinipes, Tachidius brevicornis, T. littoralis -

1929. Baldi, Edgardo. Diaptomus ... (Sicilia). Boll. Pesca, Piscic. e Idrobiol. Roma - 5(5) 887-890: 9 figs.

This Sicilian record adds an interesting point in the circum-Mediterranean range of this species, and composes almost the entire plankton of lake

1927. Borutzky, E. V. Postembryonic development of freshwater Copepoda Harpacticoida. Proc. 2nd Congress Zoologists U.S.S.R. 1925 (1927): 32

The developt of appendages in the nauplius stage confirms the scheme of Claparède, while in the copepodid stage the developt of appendages and segments goes in accordance with the general type for Copepoda. The specific differences in the post embryonic developt and in the external morphological characteristics are less pronounced than the generic differences.

1930. Pesta, Otto. Handeliella Brehm 1924 = Harpacticella G. O. Sars 1908 - (Copepoda Harpacticoida) Zool. Anz 88 (5/6): 132-138: 3 figs -

From a study of Chinese collections from which the type material of Handeliella was taken, Pesta concludes that the species properly belongs to the genus Harpacticella - hence Harpacticella paradoxa (Brehm) -

1929. Willey, Arthur - Notes on the distribution of free living Copepoda in Canadian waters. Part II Some intertidal Harpacticoids from St. Andrews New Brunswick - Contrib. Canadian Biol. 4(33) 529-539: 30 figs -

L. calamorum Willey = L. mohammed B + R. Cyclops bissextilis Willey = C. crassicaudis G. O. Sars. Laophonte discophora

1929. Aikawa, Hiroaki. On larval forms of some Brachyura. Rec. Oceanog. Works Japan 2(1) 17-55, 4 pls, 1 fig.

1932 Jakubisiak Bull. Soc. Zool France, vol. 57. (30)

Hemilaophonte janinae, n. gen., n. sp. p. 510 – fig. 2, A–G.

Female Body flattened dorsoventrally, tapered backward, the lateral epipleures prolonged. Cephalic segt of characteristic form, dilated in the middle and incurved posteriorly, equal to the 4 following segts. Furca with divergent branches, twice as long as wide with one apical seta well developed, one outer seta and an inner seta of ordinary size. Mouth parts of type Laophonte – 1st Ant. 6-jointed, the 3 basal joints the longest – 2nd Ant. 2-jointed, the second armed with 4 curved spines with 2 geniculate setae and one straight one. Legs 1 to 4 with the following segtn. 2/2 : 3/2 : 3/2 : 2/2. Exopod of 1st leg very slender 2-jointed, scarcely half as long as the basal segt of endopod which is very stout and tipped with a strong claw – Swimming legs very short with armature much reduced. distal segt of endopods of 2nd & 3rd legs with a single seta, that of endopod of 4th leg with 2 setae. 5th leg 2-jointed, the distal joint with 6 setae, the inner lobe of proximal joint with 3 setae – A single ovisac – Total length 0,64 mm.

Male A little smaller than the female – 1st antenna prehensile – 5th leg with 4 setae on the distal joint – 3 setae on the inner lobe of proximal joint –

1932 J. Roy Bull. Soc. Zool. France Vol 57, p. 543 – Names only –

1933. Bloch, Françoise et Louis Gallien – Sur la position systematique du genre Leeithomyzon et de Leeithomyzon maenadis Bloch & Gallien Copépode parasite de la ponte de Carcinus maenas Pennant – Bull Soc Zool France 58(5): 296-299 –

We are now able to confirm the placing of genus Leeithomyzon in the family Choniostomatidae of Hansen – We diagnose the genus as follows –

Leeithomyzon, Body globular, Head indistinct, only marked by a frontal prominence situated between the antennae – Antennules long, 11-jointed Antennae long curved, 5-jointed – the last joint ending in a claw – Mouth entirely ventral, surrounded by a "ventouse" – Mds styliform – Maxillae short & 1st mxpds short. 2nd pair long, 5-jointed, the last with a claw 2 pairs of thoracic legs well developed with 2-jointed endopod & exopod Abdomen very short – not segd., not articulated with the thorax. ending in a furca carrying 5 setae & There are traces of segtn on the ventral surface of body – The genital openings are situated immediately behind the 2nd pair of thoracic legs. Several ovisacs can be appended to a female and containing 1 or 2 eggs – This parasite sucks the vitellus from the eggs –

The form of body, the structure of mxpds & the morphologie of larvae present characters which place this parasite in the Choniostomatidae – Its mouth parts agree with those of that family especially the ventouse –

But Leeithomyzon possesses many characters peculiar to itself –

1. A nauplius eye – never described in the adults of other species
2. Traces of segt visible on the ventral surface
3. The fact that – mouth is wholly ventral

1924. Roy, Jean. Sur un nouvel Harpacticide muscicole, Cantho-camptus gauthieri, nov. sp. Bull. Soc. Zool. France, 49: 461-468; figs. 1-18.

1924. Monard, A. Note sur quelques formes nouvelles d'Harpacticides marins de la région de Banyuls. idem pp. 656-672; 41 figs.

Sygastes, n. gen. p. 656. general form of Tegastes, body compressed laterally able to roll itself into a ball like Cloporte + Glomeris. Carapace incrusted with calcium, deeply marked. Cephalosome and 1st segt of urosome twice v length v other segts v metasome, last segts of urosome much reduced, except v furca. 1st antenna 5-7-jointed, feebly setose. 2nd Ant. 3-jointed slender. Exopod small 1-jointed. Md. with palp reduced to 2 segts, obscurely bilobed. Mx palp with 3 lobes. 1st mxpd with 3 lobes, v median inserted on v outer. 2nd mxpd very stout, with a long style, with v last joint armed with a hairy pelote opposed to v point v claw and with a protractile spiny tongue at v base v claw. Rami of 1st leg 1-jointed. endopods of 2nd + 3rd legs 3-jointed, exopods 2-jointed as in genus Parategastes Sars. 4th leg much modified. exopod 3-jointed. 1st joint short + unarmed. 2nd with a short apical outer spine and a long inner plumose seta, v 3rd with 2 short outer spines. 2 apical setae, 2 inner setae, one much enlarged. Endopod reduced to 2 joints by fusion v 2 basal segts. fusion marked by an invagination and an inner spinule. basal joint swollen and then abruptly narrowed, distal slender + elongate with 3 spines. 5th leg triangular, strongly chitinized, reduced to a single joint by fusion.

Sygastes cornutus, n. sp. p. 657; figs. 1-8. S. macrognathus, n. sp. p. 660; figs. 9-12.

Amphiascus dictydiophorus, n. sp., p. 662; figs. 13-17.

variolor, taxon, var. ... p. 664; figs. 18-23.

Peltthestris n. gen. p. 666. Near Thalestris + belonging to v Thalestridae. Differs in general form, flattened dorsoventrally, with large epimeres. those v 3rd + 4th segts curved backward outside v abdomen. 5th segt abruptly narrowed. 1st + 2nd segts of urosome partly fused in ♀, enlarged + prolonged backward outside v rest v urosome. Rostrum long + triangular, well defined at base + curved downward. 1st Ant. 7-jointed. 1st joint stout + long. 2nd Ant. short with exopod indistinctly 3-jointed. Md. with palp less enlarged than in Rhynchothalestris, endopod 2-jointed. Mx with palp normal. Mxpd slender. 1st leg, exp a little wider than endp with 3 joints, v middle one longest. endp. 2-jointed. 2nd to 4th legs like those of Rhynchothalestris, but with v 4th lacking v outer spine. 5th leg 2-jointed. distal segt large, oval.

Peltthestris tripartita n. sp. p. 667, figs. 24-32

Alteutha sarsi. n. sp. p. 669; figs. 33-41.

1935. Burckhardt, Annemarie - Die Ernährungsgrundlagen der Copepoden-schwärme der Niederelbe - Internat. Rev. Hydrob. und Hydrog. - 32 (6) 432-500 23 figs; 9 tables -

---

1923. Chichkov, G., Sur quelques Centropagides d'eau douce de la Bulgarie L'Annuaire Univ. Sofia, 20 -

---

1934. Bajkov, A. D. The plankton of Lake Winnipeg Drainage System - Internat Rev. Hydrob. und Hydrog. 31: 239 - 272; 3 figs -
Copepoda - p. 250 - Epischura lacustris - Diaptomus sicilis, ashlandi, leptopus sicilone, tenuicaudatus, minutus, oregonensis, sanguineus - p. 250
Diaptomus clavipes, sp. Heterope, Limnocalanus macrurus, Ospliranticum labronectum, Cyclops bicuspidatus, bicolor, fimbriatus, parcus, prasinus, phaleratus, serrulatus, leuckarti, viridis - Canthocamptus minutus, staphylinoides, salamarum, p. 251

1934. Ueno, M. A new subterranean Copepod from Japan - Proc. Imp. Acad Japan, 10 -
Eucyclops nagasakii. n. sp.

1932. Rzóska, Julian, Some general remarks on the faunistics and variability of some Cyclopoida - Internat. Rev. Hydrob. und Hydrog. - 26: 424 - 430; 3 tables
1. All future work should be founded on exact quantitative biometrical methods in regard to ecological and biological differences because morphological details can be often insufficient.
2. The method of future studies should be at least partially standardized, so as to render possible direct comparison of results -

1932. [illegible] ... recerche di alcuni Ciclopidi in relazione con la loro sistematica. Internat. Rev. Hydrob. und Hydrog. 26 112-142; pl. V - VII; 13 text figs -
These investigations included 3 species living in the small lake Chiaravalle - Cyclops fuscus, viridis, + serrulatus - and with a form very similar to fuscus, C. distinctus. From a morphological standpoint fuscus viridis + serrulatus differed from the typical forms described by Schmeil only in the coloring, which is very different in different individuals - distinctus on the contrary differed in a few characteristics.
From a biological standpoint all these species are perennial during the entire year; they live in water whose temperature and concentration are constant.
From a cytological standpoint these species show numerous differences in comparison with the fuscus + viridis described by other authors in their chromosome numbers, but not from middle European species. On the other hand we find in serrulatus a complete absence of Heterochromosomes and in distinctus instead of 5 chromosomes plus 1 Heterochromosome - 7 identical chromosomes.
The small morphological differences between distinctus + fuscus, the same number of chromosomes - and the absence of albidus in the lake, appear to indicate that distinctus is not a hybrid between fuscus + albidus, but a variety of fuscus
The particular peculiarity of these species in the lake is a prematurity of ripening phenomenon - so that the beginning of division occurs not in the ovisac but soon after the entrance of sperm from the seminal receptacle

4. The 11-jointed first antennae
5. The 5-segd 2nd antennae with a peigne -
6. The terminal peigne " maxpds -
7. The 2 pairs of legs, endopods + exopods 2-jointed
8. A furca with 5 setae
9. Ovisacs with one or two eggs.
10. The presence in developt of a free nauplius (in v other species of family v larva escapes in v Cyclopid stage -
11. The absence in developt of a nymphal (pupal, Hansen) stage
12. The absence of a frontal filament to fix v larva on its host
13. The mode of life amid v ponte of Coraïnas -
These facts warrant v creation of new genus for v species -

1936. Lang, Karl, Beiträge zur Kenntnis der Harpacticiden
7. Die Familie Ancorabolidae Sars, nebst Beschreibung einer neuen Laophontodes-Art - Zool. Anz. 115(5/6) pp. 152-156; figs. 1-5
Laophontodes gracilipes n. sp., p. 155; figs 1-5 -

Key to genera

1. Rostrum present ______ 2
Rostrum lacking ______ Ceratonotus Sars -
2. Exopod P.1. 3-jointed ______ 3
Exopod P.1. 2-jointed
3. Endopod P.1. 2-jointed, longer than exopod, prehensile Laophontodes T. Scott
Endopod P.1. 1-jointed, rudimentary ______ Echinopsyllus Sars
4. Endopod P.1. much longer than exopod, Septs 1-7 dorsally with simple, laterally with divided spines - Ancorabolus Norman
Endopod P.1. as long as exopod. Septs 1-7 spineless Arthropsyllus Sars

1936. Farran, G. P. *Bradyetes brevis*, a new Species of Copepod from East Greenland - Ann. Mag. Nat. Hist., Ser. 10, 18 (104). 238-241; figs. 1-12
Bradyetes brevis sp. n. p. 239, figs. 1-12 -

1928. Thiébaud, M et J. Pelosse - Note sur les espèces du genre Moraria constatées en France - Bull. Soc. Zool. France, 53 454-466; 14 figs -
Moraria sarsi Mrázek, p. 456; figs. 1-3
——— schmeili van Douwe p. 457; figs. 4-6
——— pectinata, n. sp. p. 459; figs. 7-14.

1927. Roy, Jean - Diagnose d'un nouveau Diaptomus de l'Afrique du Nord. Diaptomus gurneyi. n. sp. Bull. Soc. Zool. France, 52, 213-218; 9 figs -

1932. Elster, Hans Joachim. Monographische Studien an *Heterocope weismanni* Imhof. Internat. Rev. Hydrob. und Hydrog. 27 (1-10): 177-233; 115 text figs. (32)
Gives entire develop't history and that of each "appendages"

Kiefer, Friedrich, Brazilianische Ruderfusskrebse (Crustacea Copepoda) gesammelt von Herrn Dr. Otto Schubart - II Mitteilung - Zool. Anz Bd. 114 Heft 5/6, 1936, pp. 129-133: 8 + figs
Eucyclops neotropicus. n. sp. p. 129: figs. 1-3 -
Neutrocyclops. n. gen. brevifurca (Lowndes) - p. 130: figs 4-5.
Thermocyclops inversus. n. sp. p. 132: figs - 6-8

Lang, Karl - Beiträge zur Kenntnis der Harpacticiden - 6 Bemerkungen über die Familie der Ameiridae Monard - Zool. Anz, Bd. 114, Heft 5/6 1936, pp. 133-136 -
Includes genera Anoplosoma, Pseudameira, Stenocopia, Ameiropsis Nitocra Ameira, Psyllocamptus, Cancrincola, Nitocrella Leptameira Leptomesochra, Malacopsyllus,

---

Smirnov, Sergius, Beschreibung einer neuen Acartia Art aus dem Japanischen Meer nebst einigen Bemerkungen über die Untergattung Euacartia Steuer - Zool. Anz. Bd 114, Heft 3/4 pp. 87-92, 1936, fig Acartia steueri n. sp. p. 87: figs. 1-3.

Lang, Karl, Beiträge zur Kenntnis der Harpacticiden - 4 Ueber die Gattungen Psamathe Philippi 1840 und Machairopus Brady 1883 nebst Beschreibung des Männchens von Machairopus hippolytes (Krøyer) - Zool. Anz, Bd 114 Heft 1/2, pp. 33-39: figs. 1-2 -
Includes Machairopus spp. lenticularis Brady - fusiarlus (T. Scott) sargassi (Sars), arthuri (Poppe), plumosus (Brady), longicauda (Philippi), hippolytes (Krøyer), australis T. Scott, machairopoides (Monard), ligusticus (Brian), idyoides Brady, major T. Scott, digitatus Brady, karlelzi (Pesta)

Leigh-Sharpe, W. Harold - New Parasitic Copepoda from Naples Parasitology, Vol. 26, No. 1, 1936, pp. 63-71: 9 + figs -
Hatschekia isahnow n. sp., p. 63: figs. 1 and 3 -
Hatschekia genco, p. 63. figs. 2 and 4.
Alella berecynthia n. sp., p. 65, figs. 5-6 -
Paratogonotis kaphe n. sp., p. 67. fig. 7.
Ismarkis n. gen. - spartoma. n. sp., p. 68, figs 8 (5 figs) - 9 (5 figs).

Andrews, Dr.E.A., Johns Hopkins University, Baltimore, Md.

Bates, Dr.Geo. A., Auburndale, Mass.

Bigelow, Dr. R.P., Institute of Technology, Boston, Mass.

Boyer, Prof. Arsenius, St. Mary's Seminary, Baltimore, Md.

Castle, Prof. W.E., Agassiz Museum, Cambridge, Mass.

Child, Dr. Chas.M., University of Chicago, Chicago, Illinois.

Clark, Dr. H.L., Olivet College, Olivet, Michigan.

Coe, Dr. W.R., Yale University, New Haven, Conn.

Colby College Library, Waterville, Maine. Will get volume of Proc.

Conklin, Dr. E.G., University of Penna., Philadelphia, Penna.

Dahlgren, Dr. Uhlric, Princeton University, Princeton, N.J.

Dean, Dr. Bashford, Columbia University, New York City.

Drew, Dr. G.A., University of Maine, Orono, Maine.

Eigenmann, Prof. Carl H., Univ. of Indiana, Bloomington, Ind.

Grave, Dr.C.C., Johns Hopkins University, Baltimore, Md.

Hargitt, Chas. W.

Harrison, Dr.G.R., Johns Hopkins University,Baltimore, Md.

Heath, Dr. Harold, Leland Stanford.University, Palo Alto, Cala.

Herrick, Dr. F.H. Adelbert College, Alfred, N.Y.

Jennings, Prof. H.S., University of Michigan, Ann Arbor,Mich.

Kingsley, Prof. J.S., Tufts College, Tufts College, Mass.

Kofoid, Prof. Chas.A., University of California, Berkeley, Cala.

Linton, Dr. Edwin, Washington & Jefferson College, Washington, Penna.

Mark, Dr.E.L., Harvard University, Cambridge, Mass.

Metcalf, Dr.M.M., The Woman's College, Baltimore, Md.

Montgomery, Dr.T.H.Jr., ~~Univ. of Penna., Philadelphia, Penna.~~ Univ. of Texas, Austin, Texas.

Morgan, Dr.T.H., ~~Bryn Mawr College, Bryn Mawr, Penna.~~ Columbia Univ. New York City.

Morrill, Dr. E.D., Hamilton College, Clinton, N.Y.

Rankin, Prof.W.M., Princeton University, Princeton, N.J.

Reighard, Prof. Jacob, Univ. of Michigan, Ann Arbor, Michigan.

Ritter, Prof. Wm.E., Univ. of California, Berkeley, California.

Sedgwick, Prof.Wm.T., Institute of Technology, Boston, Mass.

Sigerfoos, Dr.C.P., Univ. of Minnesota, Minneapolis, Minn.

Tyler, Prof. John, Amherst College, Amherst, Mass.

Verrill, Prof. A.E., Yale University, New Haven, Conn.

Wheeler, Dr.W.M., ~~University of Texas, Austin, Texas~~. Am. Museum Nat. Hist. New York City.

Wilder, Dr.H.H., Smith College, Northampton, Mass.

Wilson, Dr.E.B., Columbia University, New York City.

Wilson, Dr. H.V., University of North Carolina, Chapel Hill, N.C.

Wilcox, Dr. M. A. Wellesley College, Wellesley, Mass.

Provisional MS name
↑ mordens

Cyclopsinema ~~tenue~~ n.g. n.sp. | 1.9 | 7. | 37. | Juv. | 97.1 | 1.5 mm.
2.2 | 2.8/ | 3.5 | 3.2 | 1.5

The rather thick layers of the transparent, colorless, naked cuticle are traversed by transverse striae, hard of resolution, which are interrupted in the lateral fields by the presence of areas opposite the lateral chords on which the striae are some what different and fainter. A very careful examination of the annules indicates that they are resolvable into very faint secondary elements. The striae are rather uniform throughout the body, and, near the head, are about seven-tenths of a micron apart. Slightly oblique longitudinal striae, due to the attachment of the musculature, are rather readily visible in most regions of the body; they are plainly interrupted by the lateral chords, which appear to be about one-third as wide as the body. The contour of the body is exceptionally minutely crenate and the annules do not appear to penetrate the subcuticula, which, in the specimen under examination (recently removed from cyclops and fixed in Flemming's solution), appears to be considerably thicker than the more obviously annulated part of the cuticle.

There are no cephalic, somatic, or caudal setae.

The cylindroid neck becomes convex-conoid near the head, the front of which when seen in profile appears quite distinctly conoid in contour, though somewhat irregularly so.

DEIRIDS. On the sides of the neck, as far behind the nerve-ring as this latter is behind the head end there are two opposite, short, pointed, conoid, deirids,- apparently with a central projecting element, — i.e. innervated / The base of each deirid occupies a space approximately equal to three to four annules of the cuticle. The entire height of the se/conical, slightly retrorse deirids, about 5 microns, is approximately three times the thickness of the normal cuticle, and each deirid may be described as comprised of three parts; a distal extremely fine, acute, ~~innervated~~ part, about 2 microns long; a truncate-conoid middle part of about the same length and as wide as it is long; and a proximal internal hemispheroid basal part a little longer and decidedly wider. Thus the whold might be described as a three-jointed sensory organ.

HEAD. The head is set off by an almost imperceptible expansion at its base;

this is as seen in profile, or very nearly so, and is ~~even~~ but a little more obvious in the dorso-ventral aspect. The slight elevations at the base of the conical part of the head are due to the presence of four, flattish-hemispherical, submedian papillae, 4 microns in diameter, whose summits barely penetrate the cuticle. These papillae, from whatever direction ~~they are~~ viewed, have much the same appearance, but appear somewhat wider when seen from in front. The body musculature extends to the region of the papillae and is distinctly and probably rather strongly developed. The head is bilaterally symmetrical and there are two large, simple lateral lips or mandibles, with outer lateral grooves or "valleys" along the middle of their distal parts. Toward the base these depressions, or "valleys", are wide, appearing to occupy one-third the width of the head. The pharynx extends backward a distance somewhat less than the width of the head, its posterior limits being indicated by the refractive nature of the "roots" of the two mandibles. The pharynx, is closed in the specimen under examination, and its appearance when open remains to be seen. The posterior region of the mandibles, as seen in profile when closed, consists of elements two-fifths as long as the entire pharynx, lying parallel to each other and in this view occupying a space about equal to one-eighth the diameter of the base of the head. The number of these elements lying side by side remains uncertain but there are at least two, each perhaps duplex. These ~~organs~~ elements extend forward to that larger portion of the pharyngeal capsule which surrounds the anterior part of the mandibles. These latter are bluntly pointed in front (about 1 micron at the apex) and, in the specimen under examination, terminally they do not quite close together.

PROFILE VIEW. As seen in perfect lateral view, the head is convex-conoid, and then toward the end of the two mandibles almost imperceptibly and slightly irregularly concave-conoid, in contour. The mandibles are bluntly pointed, and, when seen in profile in the closed position, the external contours lie at an angle of sixty degrees near the terminus for a distance of 6 microns. As seen in optical section the depth of the pharynx is again as already stated. The two mandibles can be seen to be located in a head capsule 20 microns deep, the wall of which is of considerable

and somewhat variable thickness, averaging approximately about two microns. In this view the front of the capsule ~~in front~~ is seen to be faintly separate from the mandibles, and ~~this portion of the capsule is~~ to be nearly as deep as the head is wide. From it there extends backward a smaller part, 9 microns deep by 9 microns wide, somewhat after the manner of the posterior portion of the pharynx of Bathylaimus, but of course not, as there, a hollow, empty cavity. This portion now appears a little under one-third as wide as the base of the head (as against one eighth in the other view), the posterior limits lying as already described. In this portion of the capsule lie what may be called the "roots" of the mandibles. The anterior part of the "exoskeleton", or shell, of the mandibles is very distindly differentiated, one to two microns thick and refractive. At the base of this portion the labial contour extends almost directly backward, both dorsad and ventrad, the marginal refractiveness diminishing as the two contour lines finally pass dorsad and ventrad respectively and disappear. Along the very depth of the "valley" of the mandible there is a narrow refractive element, 0.5 microns wide; this marking can be followed about half-way to the bottom of the main portion of the capsule, where it forks, its two branches lying at an angle of about sixty degrees and gradually fading away.

In the lateral view, as well as the dorsal, the oesophageal tissues seem to widen out and encompass the posterior, smaller portion of the pharynx, so that at the base of the larger portion of the head-capsule these tissues occupy three-fifths the diameter of the head, while a short distance farther back they occupy ~~xxxxxx~~ no more than one-third the diameter. At the base of the pharynx they occupy a little more than one-half the diameter. The anterior contour of what has been called the head-capsule is not to be brought into definite focus in the lateral view, and hence in this position in all probability is amalgamated with the surface of the mandible. There is however good evidence that the distal end of the mandible, even back of the anterior borders of the head capsule is not rigidly connected with the capsule dorsally and ventrally. It therefore seems beyond question that the mandibles are capable of a considerable amount of lateral biting motion.

DORSAL VIEW. When viewed dorso-ventrally the mandibles appear always slightly

opened at their apices. From the apices the inner surfaces curve toward each other and there is then a slight recurvature, so that somewhat in front of the middle it would almost appear as if they could not be brought into contact. Everywhere the interior surface of the mandible is plain; there is no appearance of irregularity such as would indicate the presence of denticles or ridges, or any other sort of pharyngeal armature. Toward the back, namely opposite the base of the larger anterior portion of the pharyngeal capsule containing the mandibles, at the point where in this view the ~~mandibles would~~ lips come together, and at what might perhaps be called the hinge, there is a slight increase in volume of the cutinized matter comprising the mandibles, to that in this region the ~~dorso-ventral~~ lateral width of the labial structures is somewhat greater than it is a little farther front, yet not so wide as it is some little distance behind the apices of the mandible. So that, in this view, regarding the outer part of the mandibles as expressing a mouth opening such as that of a fish or lizard, the expression is somewhat that of a rather stupid grin.

FRONT VIEW. Focussing a little behind the tips of the mandibles, the optical cross-section of the mandibles together with the dorso-ventral expansion make a six pointed star, the upper and lower points of which are a little weaker than the other four, and exhibit less color. This is the optical section which shows the outside mandibular groove or "valley" at its most pronounced part, that is to say a considerable distance in front of the submedian papillae. This view like the dorso-ventral, shows the mandibles to close together fairly well, although they are not exactly in contact throughout their length.

AMPHIDS. By careful focussing it is possible in any of the three views, but especially the front view, to see the amphidial openings. They are a little over one micron across, and lie between the front parts of the relatively large cephalic papillae. They are seen more distinctly in front view than in any other, and may be there followed inward and backward until a sensilla is reaches which is about one-eighth as wide as the corresponding portion of the head, nearly circular in contour and resolves so as to show about eight to ten elements. There are no eyespots.

This nerma appears to be a species closely related to that found the previous year by Dr. Wilson in another cyclops Pachycyclops annulicornis (of which drawings of the head were prepared and concerning which the notes declare the head to have been removed and set on end; no end view drawing, however, appears yet to have been made).

Returning now to the appearance from in front:- In this view the submedian papillae appear to be flatter than in any other view, in fact appear only about one-third to one-fourth as high as they are wide. At the summit of the papillae there appears to be a thinning of the cuticle, indicating probably the presence of a minute pore or innervation, probably the latter. The specimen was fixed with Flemming's solution with this fixative and the front part of the mandibles appears darker than any other portion of the object, so that this view emphasizes the impression that this portion of the mandibles is solid. Following the pharynx backward until the triquetrous arrangement of the oesophageal lining comes into view there is no appearance of asymmetry, so that if the two mandibles are the result of an elimination of a dorsal element in the pharynx, this elimination is very complete.

OESOPHAGUS. The tissues extending forward from the oesophagus are somewhat wider around the pharynx, though this expansion would hardly be denominated a pharyngeal bulb. At the base of the pharynx the simple, valveless, oesophagus is about three-fifths, at the nerve-ring a little more than one-third, and finally more than three-fourths, as wide as the corresponding portion of the neck. There is no distinct posterior oesophageal swelling, but there is a distinct increase in the rate at which the organ enlarges in its posterior fourth. The musculature of the oesophagus appears somewhat as if segmented, the distance between the marks denoting the "segments" being abpit equal to one-sixth the diameter of the neck. These markings are more distinct at the axis of the organ, become less distinct near the nerve-ring, and are faint or nnn-existent in the anterior part of the organ. The lining of the oesophagus is a distinct feature throughout its length and finds its main optical expression as a single somewhat sinuous or zig-zag element extending along the axis. The outer covering of the oesophagus is rather unusually thick and refractive, and the oesoph-

ageal musculature is well developed. There is not much pigmented matter among the muscles of the oesophagus.

NERVE-RING. The well developed nerve-ring surrounds the oesophagus somewhat squarely and there are obvious nerve cells both in front of and behind it.

INTESTINE. The yellowish intestine, which becomes at once three-fourths as wide as the body, is thick walled with a moderately obvious lumen, but with no distinctly refractive lining. Farther back the lining of the intestine becomes more refractive, though in the specimen under examination, the lumen is not readily distinguishable, that is to say the walls of the intestine, when viewed in profile lie in contact with each other. The intestine is made up of cells of such a size that probably about six are presented in each cross section. These cells contain numberous granules of variable size, the largest of which are considerably wider than the annules of the cuticle. There appears to be a sort of collar between the oesophagus and the intestine, the principal constriction being in front of the collar.

TAIL. The tail is conoid from in front of the anus and tapers more rapidly just behind the anus than farther back. It is short and blunt, being at the terminus subtruncate and about one-eighth as wide as at the anus. There is no spinneret. The cuticle on the terminus is a little thicker than it is farther forward. The contour of the terminal portion is a little more distinctly crenate than is the rest of the body. The anus is slightly depressed, and from it the rectum, which is considerably longer than the anal body diameter, and appears to be about as long as the tail, extends inward and more directly forward than usual.

On each side of the tail near the beginning of the middle third there is a cushion-like elevation (phasmid) the main portion of ~~each of~~ which seems to be a thickening of the cuticle. These are lateral, or a little dorsad of lateral. When brought into optical section they are seen to constitute a rather distinct break or alteration in the cuticlar and adjacent tissues; the cuticula is at this point slightly raised, while at the same time the contour of the body wall under the subcuticle is slightly depressed. As these organs occur on the larvae it is presumed that they are not

ageal musculature is well developed. There is not much pigmented matter among the muscles of the oesophagus.

NERVE-RING. The well developed nerve-ring surrounds the oesophagus somewhat squarely and there are obvious nerve cells both in front of and behind it.

INTESTINE. The yellowish intestine, which becomes at once three-fourths as wide as the body, is thick walled with a moderately obvious lumen, but with no distinctly refractive lining. Farther back the lining of the intestine becomes more refractive, though in the specimen under examination, the lumen is not readily distinguishable, that is to say the walls of the intestine, when viewed in profile lie in contact with each other. The intestine is made up of cells of such a size that probably about six are presented in each cross section. These cells contain numberous granules of variable size, the largest of which are considerably wider than the annules of the cuticle. There appears to be a sort of collar between the oesophagus and the intestine, the principal constriction being in front of the collar.

TAIL. The tail is conoid from in front of the anus and tapers more rapidly just behind the anus than farther back. It is short and blunt, being at the terminus subtruncate and about one-eighth as wide as at the anus. There is no spinneret. The cuticle on the terminus is a little thicker than it is farther forward. The contour of the terminal portion is a little more distinctly crenate than is the rest of the body. The anus is slightly depressed, and from it the rectum, which is considerably longer than the anal body diameter, and appears to be about as long as the tail, extends inward and more directly forward than usual.

On each side of the tail near the beginning of the middle third there is a cushion-like elevation (phasmid) the main portion of each of which seems to be a thickening of the cuticle. These are lateral, or a little dorsad of lateral. When brought into optical section they are seen to constitute a rather distinct break or alteration in the cuticlar and adjacent tissues; the cuticula is at this point slightly raised, while at the same time the contour of the body wall under the subcuticle is slightly depressed. As they occur on the larvae it is presumed that they are not

but specific
secondary sexual characters, and hence not associated especially with the male, as might perhaps be thought from their appearance.

The lateral chord contains a considerable number of ~~[illegible]~~ of granulas ~~through~~ elements along its middle. Near the middle of the body the number of these collections of granules through a distance equal to the width of the body, is a dozen or more. The contours of the lateral chords are very distinct, ~~narrow~~, and refractive. Except for the masses of granules already described, the chord appears somewhat "structureless". How much these granules have been altered by fixation remains to be determined, but there is without doubt some alteration.

The musculat body wall is about as thick as the cuticle; together near the middle of the body they often occupy, in the specimen under examination, two-fifths the body radius; It is possible that there is a little deception in this and that the layers appear thicker than expected on account of the presence of chords somewhat thicker than the muscular wall of the body,- but there is doubt about this. Of this two-fifths, two-fifths is occupied by the cuticle and three-fifths by the muscular layer.

EXCRETORY PORE. The excretory pore is located behind the nerve-ring at a distance nearly equal to the corresponding diameter of the neck. The duct leading forward and outward to it is fairly distinctly cutinized and is unmistakable when brought into good optical section. It extends inward and backward at anangle of about thirty to forty degrees until it comes to the region of the oesophagus, where, apparently, it forks, the two branches following along the oesophagus for a short distance and then becoming lost to view.

Behind the nerve-ring there are groups of large ganglion cells of somewhat variable size, the largest of which are one-sixth as wide as the corresponding portion of the neck.

Certain vague structures opposite the rectum lead to the conclusion that there may be anal glands of considerable magnitude;- or possibly anal ganglia. These structures consist of five or six cells, constituting groups about one-fourth as wide as the body.

The transition from intestine to rectum is readily seen, not only on account of the constriction but on account of the change in color.

The sexual anlage is about three-fourths as long as the body is wide, and about one-third as wide as long, and seems to consist of no more than two to four cells, though the exact number is doubtful; certainly the number of cells is small. It should be noted that the sexual anlage is considerably in front of the middle point between the base of the neck and the anus, the ratio being, distance from the oesophagus, to distance from the anus as three to four.

The striking features of this larval nema are, (1) the nature of the two-mandibles head, (2) the cushion shaped papillae near the anus,(3) the cylindroid neck, (4) the well-developed musculature, (5) the deirids, and (6) the fact that it is found parasitic in cyclops. Examined after fixation in osmic vapor followed by Flemming over night.

Habitat: The specimen from which this decription is derived was found by Dr. C. B. Wilson, August 19, 1926 ~~at Woods Hole~~, in a fresh water pond at Chatham, Mass. in a specimen of cyclops, (Pachycyclops signatus).

SAMOUELLE.

Entomologist's Compendium,

1824, Page 79.

Genus 3. PANDARUS, Leach. Caligus, Müll.,Latr.,Bosc.

[Shell coriaceous-membranaceous, composed of but one part, deeply notched behind; the angles acute; the middle of the notch toothed; anteriorly narrower, rounded, with a process on each side externally bearing the antennæ: antennæ composed of two joints, the second joint terminated by several setæ: abdomen somewhat narrower than the shell, the base above with two transverse lamellæ, the first of which is four-lobed, the second bilobate: the apex notched, with two filaments longer than the body, with a lamella at their base above: rostrum elongate, attenuated, inserted behind the anterior legs: legs fourteen; anterior pair short, terminated by a short claw, and arising from beneath an ovate process; second pair with a double, unequal tarsus; third pair without any determinate form, without any claw; fourth pair bifid; fifth and six pairs bifid, their coxæ connected by a lamella; seventh pair bifid, the exterior lacinia longest, with a notch externally towards its apex.

[Sp. 1. Pand. bicolor. Shell and the middle of the abdominal lamellæ black; tail with filaments double the length of the body.

[Pandarus bicolor. Leach, Encycl. Brit. Supp. Vol. 1. Pl. 30

[Inhabits the Squalus galeus of Linné.

The Copepods of the Woods Hole Region Massachusetts. United States National Museum, Bulletin 158.

Additional Notes on the Development of the Argulidae, with description of a New Species. Proc. U.S. Nat'l. Mus. 1907.

The Fish Parasites of the Genus Argulus found in the Woods Hole Region. Bulletin of the Bureau of Fisheries for 1904.

A New Species of Argulus, with a more Complete Account of Two Species already Described. Proc. U.S. Nat'l. Museum, No. 1368, 1904.

The Newly Hatched Larva of Argulus Nagalops. Science, N.S., No. 430, 1903.

North American Parasitic Copepods belonging to the Family Caligidae - Part 1, The Caliginae. Proc. U.S. Nat'l. Mus., No. 1404, 1905.

North American Parasitic Copepods belonging to the Family Ergasilidae. Proc. U.S. Nat'l. Mus., No. 1788, 1911.

North American Parasitic Copepods.- Part 9. The Lernaeopodidae. Proc. U.S. Nat'l. Mus., No. 1783, 1911.

North American Parasitic Copepods. Descriptions of New Genera and Species. Proc. U.S. Nat'l. Mus., No. 1805, 1911.

The Habits and Early Development of Cerebratulus Lacteus (Verrill). A Contribution to Physiological Morphology. The Quarterly Jour. of Micro. Sci. '99(?)

Our North-American Echiurids. A Contribution to the Habits and Geographical Range of the Group. Biological Bulletin, No. 4, 1900.

Dragonflies of the Mississippi Valley Collected during the Pearl Mussel Investigations on the Mississippi River, July and August, 1907. Proc. U.S. Nat'l. Mus., No. 1692, 1909.

Activities of Mesenchyme in Certain Larvae. Zoological Bulletin, Vol. II, No. 1, 1898.

Water Beetles in Relation to Pondfish Culture, with Life Histories of those Found in Fishponds at Fairport, Iowa. Bulletin of the Bureau of Fisheries, Vol. XXXIX, No. 953, 1923-24.

LIST OF NON-MUSEUM PUBLICATIONS BY PROFESSOR CHARLES B. WILSON.

Argulidae from the Shubenacadie River, Nova Scotia; Canad. Field Nat., No. 8, vol. 36, 1920.

A Problem in Degeneration. Science, No. 532, March, 1905.

Copepod Parasites of fresh-water fishes and their economic relations to mussel glochidia; Bull. Bur. Fish., vol. 34,(1914), June, 1916.

New species of parasitic copepods from the Massachusetts Coast; Proc. Biol. Soc. Washington, Vol. 18, April, 1905.

Notes of Dragonflies of Jamaica; Johns Hopkins Univ. Cir., February, 1911.

Notes on Jamaica Fish and their Parasites; Johns Hopkins Univ. Cir. Feb.,1911.

Parasitic Copepods, Part I. Report of the Canadian Arctic Expedition 1913-18. Vol. 7, 1920, Ottawa, Canada.

Parasitic Copepods from the Congo Basin; Bull. Am. Mus. Nat. Hist., vol. 43, New York, April, 1920.

The Copepod Parasites (of Lake Maxinkuckee); Proc. Ind. Acad.Sci. 1918.

The Fish Parasites of the genus Argulus found in the Woods Hole Region; Bull. Bur. Fish. for 1904, vol. 24, Washington, 1904.

The Male of Pandarus Satyrus. Science, Bull. Mus. Brooklyn Inst. Arts & Sci. vol. 2, 1914.

Studies from the Biological Stations. No. 2 Argulidae from the Shubenacadie River, Nova Scotia. Canad. Field Nat. vol. 34, 1920.

Wilson's list in
with his correspondence.

Amallothrix arcuata

0 50 100

35 — 37

obtusifrons — 0 50 100

36 — 1

39 — 17 — 2

44 — 4

96

(40)

0.15

X Short

needs one 50 m tow

propinqua — 0 50 100

78 — 1

88 — 1

95 — 3

159 — 2

160 — 2

valida — 0 50 100 1000

64 b — 2

at the two lower levels without regard to the 60% drop in temperature — the same is true of all the stations (most hypothermal) in the Pacific where the temperature descends to 2°C. and even less at the 100 meter level — Here however the surface temperature is much lower and there is not so great a contrast as in the tropics — We are forced to conclude therefore that when the sunlight is intense, according to it surpasses all other incentives. It is only when the sunlight is reduced by clouds and shadows that these other incentives get a chance to exert their influence (to 7 p. 15)

Hence although ~~this~~ is not the first time that ~~vertical~~ stratification of the plankton under the influence of sunlight has been proposed. ~~But~~ it is ~~[illegible]~~ here proved to exist among the copepods over a much more ~~[illegible]~~ extensive area of two oceans — (over) Rose in 1925 (Archiv. Zool. Expér. et Génér. Tome 64, Fasc. 5, p. 387) made an extensive study of biology of plankton at Roscoff on the coast of France — He included the entire plankton in his study and amongst the other forms 6 copepods most abundant at ~~that~~ locality — Later He repeated his Roscoff experiments upon other copepods at Banyuls-sur-Mer on the Mediterranean — From these experiments he concluded that below (~~to darkness~~) a certain inferior light intensity limit the copepods were positively phototropic, above (~~to darkness~~) a certain superior light intensity limit they were negatively phototropic, while between the 2 limits they were indifferent — He concluded

Proc. Zool. Soc. London - 1895. Thompson -
Proc. Cambridge Philosoph. Soc. Vol. 1. 1925. p. 219. No. 4.
H. M. Fox. Effect of light on vertical movement.

Since every one of the station lists without exception gives definite evidence of this stratification it would seem to warrant the general statement that it is universal ~~they are probably true~~ - Everywhere in the open ocean during the daytime ~~the copepods of the plankton arrange themselves at the surface or at different distances beneath the surface according to their reaction to sunlight.~~

~~The depth at which any given species will be found depends upon the strength of its phototropism and the intensity of the sunlight. The physical and chemical characteristics of the upper 100 meters of the ocean have practically no controlling influence upon the vertical position of the copepods within these limits.~~

Michael has discovered a similar stratification in the Chaetognaths of the San Diego region on the California coast. He concluded that each species had its own definite and specific manner of vertical distribution just as truly as it had its own specific morphological characteristics and that the two were more or less interrelated

Serials Indexed in Am. Coll. Library.

Beginning

Acad. impériale des Sciences de St. Petersburg - (5), 8, 1898.
Acad. roy. des sciences, d. lettres, et d. beaux-arts de Belgique (3), 35, 1898.
" " " " " " " Memoirs. "
" " " " " " Mémoires couronnés et Mémoirs des savants étrangers —— v, 55, 1896.
Acad. Nat. Sci. Phila. Journal (2), 11, 1897.
" " " " Proceedings 1899.
Acad. Sci. St. Louis - Transactions vol. 8, 1898.
Ann. d. Sci. Nat, Paris. vol. 1.
Boston Soc. Nat. Hist —— Memoirs - v. 5, 1895.
" " " " Occasional Papers - No. 4. 1893.
" " " " Proceedings v. 28, 1897.
California Acad. Sci. Occasional Papers v. 6. 1899.
" " " Proceedings. Zool. (2), 1, 1897.
Chicago Acad Sci. Bulletin. Nat. Hist. No. 1. 1896.
Colorado Scientific Soc. Proceedings v. 1. ——
Conn. Acad. Arts + Sci. Transactions v. 10, 1899.
Davenport Acad Nat. Sci. Proceedings v. 7, 1900.
Field Columbian Museum - Zool. series - v. 1, 1895.
Harvard. Mus. Comp. Zool. Bulletin —— v, 28, 1895.
" " " " Memoirs — v. 23, 1897.
Illinois State Lab. Nat. Hist. Bulletin. v. 5. 1897

Beginning.

Iowa Acad. Sci'. Proceedings ——— v. 6. 1899.
Jenaische Zeitschrift fur naturwissenschaft - v. 1.
Kais - Konj. Naturhistorisches hof-museum - Annalen - v. 1.
Kais - Leopold - Carolin deutsche Akad. Naturforscher - v. 69 - 1896.
Konj - Zool & anthrop - Ethnog - Museum, Abhandlungen - v. 1.
Konglja svenska vetenskaps - akademien, Bihang t. Handlingar, v. 23, 1897.
" " " Handlingar - v. 1
Liverpool Biol. Soc. Proceedings & Transactions - v. 1.
Muséum d'hist - nat. Paris - Nouvelles archives. (4). 1. 1899.
Muséum d'hist. nat. Lyon. Archives - v. 7. 1899.
Nat. Hist. Soc. Wisconsin - Occasional Papers v. 1.
New York Acad. Sci. Annals v. 10. 1898
" " Memoirs no. 1. 1895.
Royal Irish Acad - Transactions ——— v. 31. 1896.
Royal Soc. Edinburgh - Transactions ——— v. 39. 1898.
" " London - Philosoph. Transactions . v. 190. 1898.
Tufts College Studies - Science — no. 6. 1900.
Univ. Toronto - Biol. Series - no. 1. 1898.
Univ. Wisconsin. Science Series - v. 2. 1898.
Videnskabs - selskabet, Forhandlingar ——— v. 1.
Zool. Jahrbucher - Supplement Band ——— v. 1.

Specimens returned Feb 20-1922

54085. Scopelus glacialis host of Cardiodectes bellottii n. atlantic. 1 fish -
~~53568~~ Modiolicola jamaicensis Jamaica - 4 ♀ paratypes
~~53567~~ ——— ——— Jamaica - 1 ♀ type
~~53566~~ Pseudomolgus sp. Laguna Beach Cal. 1 ♀ "
~~53565~~ ——— hawaiiensis - 6 ♀ 1 ♂ - paratypes -
~~53561~~ Ergasilus centrarchidarum - Fairport - 100 ♀s.
~~53569~~ Blakeanus corniger - L. I. Sound - 1 ♀ - type
~~53563~~ Sphyrion lumpi - New Jersey - 1 young ♀ "
~~53553~~ (11) Lepeophtheirus parviventris n. sp. Venice Cala - 3 ♀s.
~~53564~~ Pseudomolgus hawaiiensis n. sp. Hawaii - Type female -
54086 Trichomolgus agilis - Laguna Beach - 9 ♀s.
~~53554~~ (12) Achtheinus dentatus n. sp. So Cala - 8 ♀ paratypes
~~53559~~ 17 Alebion fuscus, n. sp. W. Hole - 1 type ♀.
~~53560~~ 18 Alebion fuscus. n. sp. W. Hole 4 paratype ♀s.
54087 Trebius latifurcatus n. sp. Cala - Nauplii + eggs
~~53552~~ (10) ——— ——— ——— 25 female paratypes
~~53551~~ (9) ——— ——— ——— 1 type female
~~53557~~ 15 Nesippus alatus Wilson Woods Hole - 12 ♀s
54088 Argulus trilineatus Wilson - Washington. D.C. 2 ♀s.
~~53555~~ 13 Achtheinus dentatus - Venice, Cala. 4 ♀s.
~~53558~~ 16 Achtheinus dentatus Venice, Cala, 1 ♂ -
~~53556~~ 14 Elytrophora hemiptera - Nagasaki Japan - 1 ♀ type
~~53562~~ Pennella filosa San Diego. Cala - 1 ♀ -
54089 Sarcotretes sp. Bulan Island - Philippines - 6 ♀s.

54065	Lernanthropus	pomatomi –	W. Hole –	20 ♀s.
54061	———	caudatus	Beaufort –	1 ♀ type
~~54057~~	———	paenulatus	W. Hole	2 ♀
~~54054~~	———	brevoortiâe	Beaufort	35 ♀ –
~~54059~~	———	paenulatus	W. Hole	1 ♂ Arsenotype
~~54060~~	———	———	Beaufort –	2 ♂s.
~~54058~~	———	———	W. Hole	1 ♀ Type –
~~54052~~	———	brevoortiâe –	W. Hole –	6 ♀s.
~~54053~~	———	———	W. Hole –	15 ♀s.
~~53571~~	Anthosoma	crassum	W. Hole –	2 ♀s.
~~54055~~	Lernanthropus	brevoortiâe	Beaufort –	2 ♀s.
~~53570~~	Anthosoma	crassum	W. Hole –	1 ♀
(5) ~~32814~~	Nemesis	atlanticâ –	Beaufort –	30 ♀ paratypes
(6) ~~39564~~	———	———	Beaufort –	50 ♀.
(7) ~~39565~~	———	———	Beaufort –	30 ♂ –
~~54051~~	———	———	Beaufort –	1 ♀ + 1 ♂ types –
~~53575~~	Lernanthropus	leidyi –	Beaufort –	1 ♀ type
(8) ~~42326~~	———	lappaceus	Batavia, Java –	2 ♀ 2 ♂s.
~~54056~~	———	brevoortiâe	W. Hole	10 ♀s
~~53574~~	———	leidyi	Beaufort –	25 ♀s.
~~53572~~	———	———	Beaufort –	1 ♀ type
~~53575~~	———	———	Beaufort –	15 ♀s.
~~53573~~	———	———	Beaufort –	25 ♀s.
54084	Salmincola	siscowet –	Yellowstone Park	8 ♀s.

54077 Pseudocycnus buccatus - W. Hole - 1 ♀ type
54074 Dichelesthium sturionis - W. Hole - 6 ♀
54081 Pseudomolgus navanacis - Cala - 1♀ 1♂ types
② ~~8184~~ Dichelesthium sturionis - W. Hole - 1 ♀ -
54076 Dichelesthium sturionis W. Hole - 5 ♀
54075 Dichelesthium sturionis W. Hole - 10 ♀
① ~~6173~~ Dichelesthium sturionis Noank, L. I. 10 ♀
54063 Lernanthropus chlamydotus. Beaufort 1 ♀ type.
54064 Lernanthropus chlamydotus Beaufort - 7 ♂ - 15 ♀.
54069 Lernanthropus rathbuni Beaufort - 2 ♀ - types
③ ~~12663~~ Pseudocycnus appendiculatus Martha's Vineyard - 6 ♀s.
54078 ——— buccatus W. Hole - 8 paratype ♀s.
54083 ——— appendiculatus N. Truro 6 ♀ -
54072 Endactylina nigra. W. Hole - 60 ♀ -
54079 Pseudocycnus buccatus W. Hole 5 ♀ -
④ ~~12663~~ ——— appendiculatus 10 ♀s M. Vineyard (two of these)
54073 ——— ——— 1 ♂ " "
54071 Endactylina nigra W. Hole 15 ♀ paratypes
54070 ——— ——— W. Hole 2 ♀ types.
54067 Lernanthropus pomatomi - W. Hole 5 ♂ 2 ♀ -
54068 ——— ——— W. Hole 7 ♀
54066 ——— ——— Beaufort - 1 ♂ 10 ♀
54062 Lernanthropus caudatus Beaufort - 2 ♀ paratypes
54063 ——— chlamydotus Beaufort 1 ♀ type

54090 - Notodelphys agilis - Bay of Fundy - 1♀
54091 - Lepeophtheirus parviventris - Alaska - 12♀
54092 Salmincola edwardsii - Smiths Town L.I. 50♀
54093 Medesicaste triglarum - unknown 1♀.
54094 Dolops doradis - Rio Grande do Sul - 6♀:2♂
54095 —— —— Sao Paulo Staat - Brazil - 1♀1♂
54096 Dolops discoidalis - Rio Bahia - Brazil 1♂:1♀
54097 Dolops doradis Sao Paulo Staat, Brazil 4♀:1♂
54098 —— —— Rio Grande do Sul, Brazil 2♀:2♂
54099 —— —— Sao Paulo Staat, Brazil - 1♀:1♂
54100 Dolops geayi Sao Paulo Staat — 3♀:2♂
54101 Argulus lepidostei Fairport, Iowa - 20 young ♂s
54102 Cecrops latreillii Santos Brazil - 1♂:1♀.